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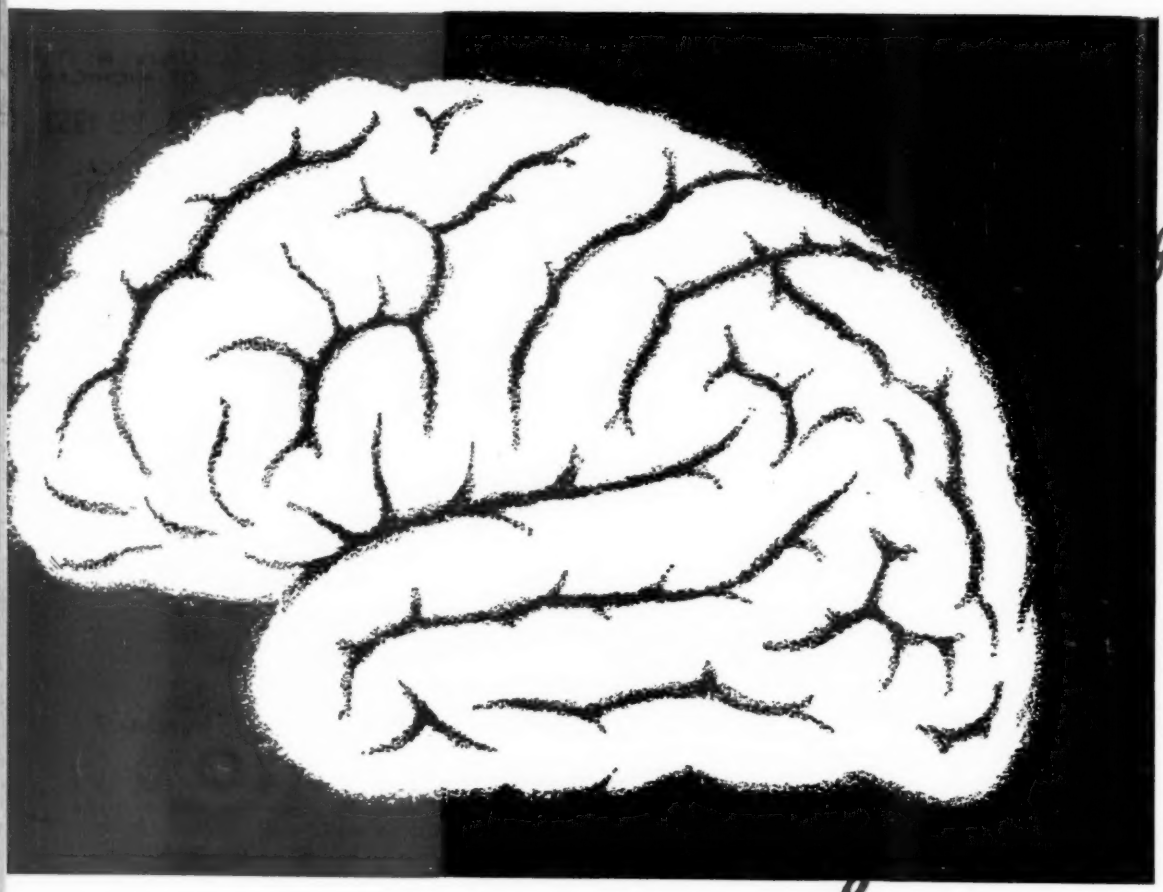

Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 36 **July, 1953** **Number 7**

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Minnesota Medicine

Journal of the Minnesota State Medical Association, Southern Minnesota Medical Association, Northern Minnesota Medical Association, Minnesota Academy of Medicine and Minneapolis Surgical Society

Volume 36 **July, 1953** **Number 7**

ST. JOSEPH'S HOSPITAL
1853-1953

ROBERT ROSENTHAL, M.D.

Saint Paul, Minnesota

ANY INSTITUTION may be justly proud of a full century of unselfish devotion to the cause of humanity. This is especially true of an organization which began in a small, humble manner and, despite obstacles and periods of intense difficulty, persisted in growing with its community and in meeting demands made upon it.

With the exception of the military hospital at Fort Snelling,[1] St. Joseph's Hospital is the oldest institution dedicated to healing in Minnesota. St. Joseph's, for one hundred years, has served not only the thriving city of Saint Paul, but has also extended its benefits to the surrounding country. From the time when the great St. Croix valley was the mecca of lumberjacks to the present when a town has become a city and a wilderness valley has been transformed into a rich agricultural area, St. Joseph's Hospital has stood strong and steady to minister to the hurt and the sick.

The story of those four sisters of the Order of St. Joseph of Carondelet who had come to Saint Paul to teach the alphabet and to perpetuate the faith is well known. The names of Mother St. John Fournier, Sister Philomena Vilaine, Sister Francis Joseph Ivory, and Sister Scholastica Vasques are an imperishable symbol of man's humanity to man and form the very foundation stones of the institution we know as St. Joseph's Hospital. These nuns, together with His Grace Bishop Joseph Cretin—spiritual rector and philanthropist—these devoted servants of the Church recognized the need for a hospital in Saint Paul.

This need had become evident before 1853. The early 1850's in the North Country was a period of great immigration. Thousands of men and women and children disembarked from river boats at Saint Paul's lower landing to make new homes for themselves in a territory that soon was to become a state. Among these early arrivals was Dr. John Day.[2] His, perhaps, was the earliest vision for a hospital. Day even reached the point of securing a site and fencing it in. He purchased building materials and caused them to be hauled to the chosen location. But he never realized his dream, and when he knew that he could not go forward with his plans, he disposed of lot and materials to Bishop Cretin. And it was the Bishop who undertook to raise the structure, a four-story stone building that was begun early in 1853.

The erection of this hospital was no easy task in a frontier community. Saint Paul's population numbered less than 1,500 in 1853. The territory of Minnesota was sparsely settled, too. No railroad crossed the land. Goods and supplies had to be transported by ox carts, by stages, or on the

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The writer of this history leaned heavily upon the excellent history of St. Joseph's Hospital by Dr. John M. Culligan and Dr. Harold J. Prendergast, "St. Joseph's Hospital in St. Paul," published in *Acta et Dicta*, Vol. VI, 1934, the "History of Medicine in Ramsey County" by Dr. John Armstrong, MINNESOTA MEDICINE, October, 1938 through October, 1939, and "The Asiatic Cholera in St. Paul" by the same author, MINNESOTA MEDICINE, December, 1942 through February, 1943.

1. In 1855, the Christ Church Orphans' Home and Hospital opened on Park Place. After being closed for a period, it reopened in the early 60's and later reorganized as St. Luke's Hospital. Prior to 1870 St. Joseph's and St. Luke's Hospitals were the only hospitals in St. Paul. The Free Hospital for the Poor established about 1860 under the auspices of St. Paul's Episcopal Church was rather a home for infirm aged than a hospital. The City and County Hospital was opened in 1882.

2. "The Catholic Church in the Diocese of St. Paul" by James Michael Reardon, P. A., 1952.

waterways.[3] But water routes were open only from late spring until the beginning of grey winter. Saint Paul certainly was a real frontier community, endowed with all the shortcomings and hardships of the primitive settlement, but also infused with the enthusiasm and hope that characterized the American West.

Under these pioneer conditions, Bishop Cretin raised his hospital in one and a half years. When, in the early months of 1853, His Grace laid the cornerstone, he was not quite certain in his own mind whether the building to come would house a hospital or a college.[4] It would be a hospital if sufficient sisters could be found to nurse the sick; it would be a college if nursing sisters were unavailable. Either way, the institution would serve a human need.

The question of hospital or college must have been answered toward the close of 1853, for in November the *Minnesota Pioneer* published a short business directory. This directory included "One Catholic Hospital," which, it cannot be doubted, referred to St. Joseph's. (The directory, you may be interested to know, also listed three newspapers, seven churches, fourteen physicians, two dentists and—two wholesale liquor stores.) Another issue of the *Pioneer* in the same month described the Catholic Hospital as a "large stone edifice near the Capitol built for the Sisters of Charity. It is not yet finished, but is nearing completion." By the beginning of winter in 1853, the building was enclosed and roofed. It appeared so large and ample that some individuals felt it could provide space not only for the hospital, but also for an orphan asylum and a separate and independent novitiate for the Sisters. Construction slowed during the heavy winter months and when spring came the structure still was not completed.

The first dramatic need for St. Joseph's came before accommodations were available. The Asiatic cholera made its appearance in Saint Paul. The disease was not entirely unknown, for sporadic cases had been seen and reported in 1849. But it was in 1854 that cholera attained almost epidemic proportions. In spite of the silence of newspaper editors, Saint Paul citizens knew what was transpiring and were apprehensive. A Board of Health was established, but very little is known of its deliberations and actions as only one report—that of June 11, 1854—has been preserved for us. Perhaps Saint Paul newspapers intentionally soft-pedaled the seriousness of the cholera epidemic in order not to interfere with the active immigration of the time.

No building was available in which to house victims of the disease. Bishop Cretin, therefore, proposed to the Board of Health that "the city could have the use at a reasonable expense, of ample apartments in the hospital now in process of erection under his superintendence as soon as it was finished, which he thought would be by the first of July." The need, however, was immediate, and an old log church on Bench Street, the original Chapel of Saint Paul which was erected in 1841 and which was being used as a school, was transformed into a small cholera hospital. We might, therefore, look upon this revered little log building as the real origin of St. Joseph's Hospital.

The makeshift hospital on Bench Street "scarcely sufficed for the wants of the neediest among the sick, and the generous labors of the Sisters of Charity were restricted."[5] Saint Paul, therefore, must have been unusually joyful when the new building was dedicated solemnly on September 19, 1854, and when it was promised that the hospital would be opened early in October.

The hospital was situated on Ninth Street, "on a beautiful plateau planted with trees." It possessed a "commanding view of the city and of the Mississippi River."[6] The hospital's location was described as "the most healthy and beautiful." Dr. Day had chosen the site well, for it was on a plateau high enough to rise above an area of swampy land bounded by West Fourth Street, Pleasant Avenue, St. Peter Street, and Ninth Street. A brook running from Rice Street passed near the hospital to angle off toward Seven Corners.

Photographs of the late 1850's and early 1860's show that St. Joseph's possessed a fourth story, which contemporary accounts sometimes referred to as the attic. This original building occupied

3. The railroad came as far as Galena in 1854 and did not reach Saint Paul until about ten years later.

4. Bishop Cretin had been designated Bishop of Saint Paul in 1851. It is believed that he contributed financially to the building of the hospital because he had received 10,000 francs from his family in France and there is no official knowledge or record of what he did with his money.

5. *Minnesota Democrat*, September 20, 1854.

6. *Weekly Pioneer and Democrat*, February 17, 1859, and Saint Paul City Directory, Newson and Barton Publishers, Saint Paul, 1858-1859 . . . Hospital of St. Joseph's.

the location of the main structure of the present institution. Here in this first hospital were arranged the early floor-plans. In the basement were utility rooms, the kitchen, a dining room for hired help, and the laundry. A vegetable cellar was handy. In addition to a parlor, community refectory, assembly rooms, and chapel, the first floor also had two wards. On the second floor were a ward for men and another for women, two private rooms, and a drugroom. Up a flight of stairs were to be found wards for women and the Sisters' dormitory. And the fourth or attic floor was reserved for mental cases (usually delirium tremens), but included also ward space. Along the front of each of the first three stories ran a porch. Two small brick buildings—one to the southeast and another to the southwest—served from time to time a variety of purposes: school, doctor's residence, contagion wards during epidemics, morgue, and ice house.

This brand-new institution, although primitive by today's standards, was thought most modern in those far-away days of the 1850's. Comment was made on the hospital's neatness, its orderly arrangement, its air of comfort, its healthy cleanliness. And wonder of wonders—there were bathrooms on each floor.[1] Citizens of Saint Paul were most impressed, but the plain truth is that water was carried to each floor by means of a force pump of the antique type used on old fire engines.[7] It took four sisters to supply the force—and back-breaking work it was. Such were "modern" conveniences in the mid-nineteenth century!

An 1855 report tells that nine patients were being cared for in St. Joseph's and affirms that care was most satisfactory. The hospital was praised as a "work of charity and benevolence, which stands out in bold relief, a monument to the projector, of faith, hope, and good will to all mankind." This was as it should be, and the same words could well be applied to St. Joseph's today.

One of the curious sidelights of this story of a great hospital concerns a school for girls which was attached to the hospital and which opened on January 1, 1855. Apparently a brick building had been erected near the southeast corner of the hospital between 1853 and 1855. This was the school which was giving instruction to thirty pupils by February, 1855. The hospital itself was caring for the same number of orphans, the largest group of this type in any of the several institutions managed by the Sisters of St. Joseph.

It is a little difficult to find reliable figures as to the number of patients in the hospital in this pioneer period, but it is known that poor patients were received as far as money permitted and that a "skillful physician will visit the hospital at least every other day." Apparently, only one physician was in charge of the hospital at a time. The physician referred to here was Dr. S. Willey. Private patients, of which there were relatively few, paid eight dollars a week. This eight-dollar fee for a private room included physician's care, nursing by the sisters, medicines, and, of course, fuel and light.[8] This charge was considered reasonable even for the year 1855. Although St. Joseph's attempted to be incorporated, such an action did not become a reality until forty years later.

In 1855 cholera again was present in Saint Paul. Perhaps the number of cases even increased over those of previous years. Be that as it may, St. Joseph's hospital, as always, was the place to which victims of the dread disease were carried. A cholera victim, said a newspaper, was turned out of his hotel and put unceremoniously down on the inhospitable pavement. Eventually, the patient was removed to a physician's office and from there to "the hospital," which no doubt was St. Joseph's.[9] The wife of Dr. S. Willey remembered that a river steamboat came to dock with eleven victims of cholera. These unfortunates were loaded on wagons to be taken to St. Joseph's. It was ill luck, indeed, that these primitive ambulances had to pass through a swamp, where one of them mired down. Before it could be released, two patients died.[10]

Cholera patients were not sufficiently numerous during the months to come to keep the hospital supplied with ill human beings and, it must be said, relatively few individuals ill from other diseases came to be nursed. These were the days when hospitals were still suspect and when the average citizen preferred to remain at home when he was sick. Consequently, Bishop Grace and the hospital trustees decided in 1859 that "the interest of the hospital would be served by a tem-

7. *St. Paul Pioneer* of January 26, 1855, and *Minnesota Democrat* of February 14, 1855.

8. *Minnesota Democrat*, February 14, 1855.

9. "The Asiatic Cholera in St. Paul," by John M. Armstrong, MINNESOTA MEDICINE, January, 1943, p. 110.

10. "The Asiatic Cholera in St. Paul," by John M. Armstrong, MINNESOTA MEDICINE, January, 1945, p. 112.

porary removal from the hospital building to those now occupied by the Sisters of St. Joseph."[11] This decision was determined upon in part because city and county patients who previously had been sent to St. Joseph's Hospital now were being cared for elsewhere.[12] Consequently, the log buildings on Bench Street (one of them the chapel) were put to use as hospital units. The building on Vine Street was turned into a school and opened in September, 1859, as St. Joseph's Academy for Young Ladies. Sixteen boarders and forty day pupils were registered during the autumn of 1859.[13] Although the St. Joseph's Hospital building was not used for hospital purposes, it must be pointed out that the *Minnesota Pioneer and Democrat* of July 12, 1860, published a statement saying that the institution still cared for "invalids of every nation and faith" and added that the Sisters always were ready to care for transients who had the misfortune to become ill. Thus, you see that the hospital situation was considerably confused.

This confusion was compounded during the next three years when the building of St. Joseph's Hospital was used to house the Sisters and, it may be said, that some patients were received and cared for. There is evidence of this in the form of a city council action which approved a bill for payment for the care of patients, but a council action of the same time affirmed that "in general, patients shall be sent to the County Poor Farm."

The date of October, 1863, however, brings a termination to the confusion of functions. It was then that the hospital moved back to the original building. This building has not been closed from that day to this. Slight changes were made in certain rules and regulations. For example, prices were set at five dollars a week for a private room and three dollars for a ward bed, but these charges did not include medicines and medical care. Patients now were given the privilege of choosing their own physician.

In December, 1863, a new structure appeared. This had been put under construction two years previously and was to house St. Joseph's Academy. The two cabins on Bench Street were abandoned. Thus, to make the picture perfectly clear, there were three buildings, each with a specialized function: St. Joseph's Hospital, St. Joseph's School, and an orphanage.

Although I have no desire to interpret the role of cholera as that of a hero, it is perfectly true that this disease, from time to time, did stimulate the activities of St. Joseph's Hospital. Such was the case in 1866, when once again the cholera came to Saint Paul. The city fathers, attempting to determine where these unfortunate victims might best be treated, thought for a time to erect a hospital, but better wisdom prevailed. It was decided to ask St. Joseph's Hospital to accept them. Under the leadership of Drs. Willey and Stewart, this plan almost materialized.[14] Unfortunately, residents close to St. Joseph's objected strenuously, even threatening to burn the institution if cholera patients were admitted. As a result, a quarantine station was built in Pig's Eye.[15] The entire situation, however, was favorable to St. Joseph's, for it brought the institution to public attention.[16]

After the Civil War, the services of the hospital were in more and more demand. A west wing was added in 1878, and this wing is the oldest portion of the building as it stands today. This is true because the original structure was torn down in 1893 and rebuilt in 1895. The east wing was added in 1885. Other innovations included a separate laundry building and the use of the Lick House by the Sisters who were teaching at St. Agatha's Conservatory. This Lick House, it may be said, had quite an unusual history. It was believed to be haunted as the result of a murder. The Sisters, however, took ghost-ridden

11. Quoted from "History of Medicine in Ramsey County," by John M. Armstrong, MINNESOTA MEDICINE, February, 1939, p. 110.

12. The information is very indefinite as to where they were cared for, but as two years previously sixty acres of land had been purchased at Pig's Eye for a County Farm, it is assumed that this may have been the place where these patients were taken.

13. "On Good Ground; the Story of the Sisters of St. Joseph in St. Paul," by Sister Helen Angela Hurley, 1951.

14. Dr. Jacob Henry Stewart had come to Saint Paul in 1855 and very soon became a very popular physician. He was the first president of the newly organized (1856) Y.M.C.A. and county physician from 1856 to 1857. He was State Senator from 1859 to 1860 and Surgeon General of Minnesota from 1857 to 1863. He was Mayor of St. Paul in 1864, 1871, and 1873 and Postmaster from 1865 to 1870. Later he was associated with Dr. Charles Wheaton. He died in 1884.

15. On August 21, the newly organized Board of Health reported that two buildings, 24 by 30 feet and 30 by 30 feet respectively, were almost finished to provide a quarantine station and that furnishings and drugs would be sent there the same day. Three days later, Dr. Charles Smith who had just come back after serving his internship, was made assistant to Dr. Thomas R. Potts, the newly elected city physician and health officer, and put in charge of these two buildings. By this time, however, the relatively mild epidemic had spent itself.

16. After this outbreak, only very occasional cases were reported in Saint Paul, the last one in 1873, a case seen by Dr. Samuel Flagg and Dr. Stewart.

houses in their stride and lived in this one until 1884.

After many delays, the incorporation of St. Joseph's Hospital took place on April 16, 1895.[17] By then the staff of Sisters had increased considerably, and the institution was ready to modernize itself as modernization was known in the decades before 1900.

Medical teaching, begun in these early decades, always had been a firm objective of St. Joseph's. Thus it looked with favor upon the Saint Paul School for Medical Instruction which functioned from 1871 to 1879 and which later became the Saint Paul Medical School, which existed from 1885 to 1888. These medical schools used St. Joseph's Hospital for teaching medical students. A residency for an intern at St. Joseph's was established in 1885. By then a large amphitheater in the operating room had been constructed for the convenience of students. Since those early years, well over 350 medical students have received medical teaching at the hospital. The first intern was one whose name looms large in the medical history of the state.

Dr. Arthur A. Gillette was that intern of 1885, and he was destined to become one of the outstanding orthopedists in Minnesota. In 1895, he began his remarkable career as a medical educator at the University of Minnesota as instructor, clinical professor, and full-time professor of orthopedics, and finally as head of the orthopedic division. During his full life, he became president of just about all the Minnesota societies of which he was a member. The Gillette Hospital for Crippled and Deformed Children is an everlasting monument to his foresight as well as a pioneer achievement, for when it was built it was the first institution of its kind in the United States. "Success comes to many as it came to him, but success with distinction is won, as he won it, by few."[18]

St. Joseph's second intern was Dr. Harry J. O'Brien, who served in 1886. Like Dr. Gillette, Dr. O'Brien was destined to make medical history. With the assistance of Mother Bernardine Maher, Dr. O'Brien in 1894 established a school of nursing. For many years this school profited by his abilities as medical director and as lecturer. From Dr. O'Brien's experiences in teaching nursing came a text entitled "Medical and Surgical Nursing." Published in 1900, this volume approached nursing from the point of view of the physician and surgeon. It was a guide for graduate and student nurses and was full of practical wisdom including instruction in the art of cooking for the sick. Certain chapters were contributed by outstanding members of the medical profession of the day. When Dr. Burnside Foster reviewed O'Brien's volume in the *Saint Paul Medical Journal* for August, 1900, he wrote: "While we cannot say that the book contains all that the trained nurse should know, it certainly contains very little that she should not know, and in this respect it is to be preferred to most of the text books for nurses which we have seen and which contain a vast amount of information and instruction which is superfluous."

In addition to compiling his text on nursing, lecturing to nurses, and acting as medical director of the school of nursing, Dr. O'Brien was one of the outstanding surgeons of St. Joseph's Hospital. He was most generous to members of the medical profession. It is to be remembered that he presented the hospital with a horse-drawn ambulance when such vehicles were indeed a luxury. Dr. O'Brien died in 1931.

Of the twenty-nine young men who interned at St. Joseph's prior to 1901, there is at least one who is still practicing. He is Dr. George E. Sherwood of Kimball, Minnesota. Dr. Sherwood interned in 1894 and then practiced in Dassel for a few years. From there, he moved to his present location, where he has practiced for half a century and where the people of the community tendered him an enthusiastic celebration in appreciation of decades of unselfish labor. It is a pleasure to report that Dr. Sherwood is hale and hearty, that he travels a great deal, and that he still takes care of his practice.

When Dr. O'Brien helped establish the school of nursing in 1894, he could not know of the far-reaching influence of his work. The first class of sixteen nurses was graduated on July 7, 1896. Of this number, ten were nuns. Diplomas were given the graduates by Archbishop John Ireland, who is becoming known today as one of the great prelates of the Church of the United States. The Archbishop was assisted by Dr. Charles L. Smith. Archbishop Ireland, in the well-chosen words for which he was noted, commented upon the progress made by the hospital during the past quarter of

17. The articles are reprinted "St. Joseph's Hospital in St. Paul," by Dr. John M. Culligan and Dr. Harold J. Prendergast, 1934.

18. Memorial to Arthur J. Gillette, MINNESOTA MEDICINE, Vol. IV, 1921.

a century and paid tribute to those physicians who cared for the sick and to whom the "hospital owed its prosperity of the present time in a manner." He enlarged upon the advances made in medicine, stressing the fact that medical science was paying more attention to the *vis medicatrix naturae* and leaning more toward expectant treatment. Archbishop Ireland compared the work of physicians with that of nurses and said that frequently the labors of devoted nurses were the more important. He admonished nurses, however, to realize that their studies were not completed just because they had finished a course and were being graduated. He cautioned them to continue to observe and thus to learn. In a relatively brief talk, Dr. Smith spoke of the duties of nurses, of the importance of tact, and of the necessity of medical confidence. The exercises were concluded with a literary and musical program.

St. Joseph's Hospital, recognizing the imperative need for nurses who were well trained, extended the length of the training course to three years before 1900. It was the first of many western hospitals to do so. Thus, once again, St. Joseph's was a leader, making the way for other institutions to follow.

During the years, some 2,285 nurses have been graduated from the institution. In 1942, the school of nursing of St. Joseph's was incorporated into the Department of Nursing of the College of St. Catherine. Under this merger, students may enter a three-year course which gives them a diploma or select a four-year program which results in the degree of Bachelor of Science. This latter course puts special emphasis upon training in the basic sciences. Clinical experience is provided either at St. Mary's Hospital or at St. Joseph's.

Although a few of the distinguished physicians who were connected with St. Joseph's have been mentioned, it would be most unfair to conclude even a brief summary of a great healing institution without mention of some of the earliest outstanding practitioners closely connected with the hospital or without reference to a few of the techniques that were introduced.

Dr. Samuel Willey, mentioned earlier, was one of the top medical men during Saint Paul's years of growth. Born in Boston, he attended Yale Medical College, and in 1850 was graduated from the Cleveland Medical College. He immediately secured a position at the Ohio Hospital for the Insane. There he remained, except for a brief period in Cincinnati, until he came to Saint Paul in October, 1852. There is a story told—although I cannot vouch for it—that Dr. Willey stepped off the steamer at Saint Paul's landing with only fifty cents in his pocket. But this poverty was not to be his for long. He associated himself with Dr. Brisbine and soon was one of the most popular physicians of his day. Though not present at the organizational meeting of the Minnesota State Medical Society, Dr. Willey was counted among the charter members by request. Through the years, he demonstrated great interest in the foundation of this society and worked conscientiously for its success. In 1869, when the society was reorganized, Dr. Willey was elected president and was re-elected the following year. In 1870, he was elected a vice president of the American Medical Association. Dr. Willey exerted great influence upon the policies of the Saint Paul Academy of Medicine, which had been founded in 1860. It is interesting to note that Dr. Willey's large practice and his poor health led him to introduce several innovations which we consider to be perfectly usual today. He was the first physician in Saint Paul to stop compounding his own medicines, to establish regular office hours, and to employ an agent to collect overdue bills. Dr. Willey retired in 1871 and died in November of the following year.

There were three other physicians whose services were important to St. Joseph's Hospital during the first year or two. These were Drs. Albert C. Brisbine, James Dinsmore Goodrich, and O. P. Marsh.

Dr. Brisbine was born in the Buckeye State at New Lisbon (now Lisbon) in 1825. He did not remain long in his native Ohio, however. After being graduated from Jefferson Medical College, he emigrated to Saint Paul, arriving in 1851. He was a founder of the Minnesota State Medical Society and of the Ramsey County Medical Society. He was first associated with Dr. Willey and later with Dr. E. J. Abbott and Dr. Clinton C. Miller. He died as the result of a fall in 1887.

The second prominent physician, Dr. Goodrich, had been born in Ripley, New York, in 1820, and had practiced in Cleveland before coming to Minnesota for his health in 1851. Thus he and Brisbine arrived the same year. There was a difference between the two men. Whereas Dr. Brisbine entered practice immediately after settling in

Saint Paul, Dr. Goodrich tried his hand as a sailor on the Great Lakes and did not begin practice until 1852 or 1853. He became the first health officer and the first city physician of Saint Paul and was named coroner in 1857. He left the city in 1859, after having been associated with Dr. Marsh. Two years later Dr. Goodrich died.

Although Dr. Marsh was the least prominent of the early attending physicians at St. Joseph's Hospital, he was a man of repute. He had come to this community in July, 1853. At the organizational meeting of the Minnesota State Medical Society, he was marked present by request. Although he is mentioned as a member of one of the Society's committees in 1856-57, he may have left the city before that.

As the years passed by and Saint Paul emerged from the role of a primitive community to a great urban center, practically all the outstanding physicians brought patients to St. Joseph's, and outstanding feats of medical history were performed. Dr. Justus Ohage, for example, performed the first cholecystectomy in the old operating room on the top floor of the east wing on September 24, 1886. This was the first successful operation of its kind in the United States. The patient outlived the operation for about forty-two years. Dr. Ohage's success was reported in the *Medical News* of February, 1887.[19] Prior to Dr. Ohage's attempt at St. Joseph's, this type of operation had been performed only eight times in Europe and with only one fatality. It is fitting, therefore, that St. Joseph's Hospital should have a bronze plaque commemorating the event in the lobby.

There were other noteworthy operative procedures. Dr. Arnold Schwyzer removed the entire transverse colon and repaired the torn superior and inferior mesenteric veins in 1898 in a case of intestinal obstruction by a pancreatic tumor.[20] This may have been the first performance of such an extensive resection of colon. And, it must not be forgotten that Dr. Schwyzer's operation was remarkable also by the very early use of a transfusion of physiologic salt solution to combat loss of blood.

On November 10, 1903, Dr. Schwyzer again made medical history and again made it at St. Joseph's. He performed what seems to have been the first bronchoscopy in America with a bronchoscope. He used a Killian instrument which he had obtained in Europe the previous summer and successfully removed a bone lodged in the right bronchus. His patient had a large goiter which had to be resected before the bronchoscopy, which was then performed through a tracheotomy wound.

It is important to remember also that Dr. Fred J. Plondke, a staff physician, introduced the use of spinal anesthesia. He used Stovain, which he had brought from Europe, in almost thirty cases between 1905 and 1906. Although a pioneer in this work, Dr. Plondke was forced to abandon it because Stovain could not be procured. Some twenty years later this method of anesthesia was revived.

Scientific apparatus and methodology kept pace with innovations in medicine and surgery. The first laboratory was set up in 1902 by Dr. James Ferguson in a meagre space located under the stairs which lead from the ground floor to the east wing. This early laboratory centered around a microscope, although Dr. Ferguson furnished in addition a microtome and a homemade atomizer utilizing ether to freeze sections. The next home of the laboratory was on the fourth floor,[21] and then in 1905 it was taken to the basement of the east wing and materially enlarged under the direction of Dr. Fred C. Schuldt.[22] In February, 1919, the laboratory once again took up its abode on the fourth floor in order to be closer to operating rooms.

St. Joseph's first x-ray machine, a motor-driven static model, was installed by Dr. Arthur Miller in 1902, only a few years after the x-ray had come into use in the city. About 1907, the department of x-ray and static electricity was moved to the ground floor. It was not until 1911, however, that a first-class x-ray, consisting of a 4 kilowatt Snook transformer with Keleket tube stand and table and a "stereoscopic illuminator,"[23] was installed. This equipment was located on the fourth floor near the laboratory, where it remained until about 1922 when the x-ray department was renovated and reorganized and, in the

19. "The Surgical Treatment of Disease of the Gallbladder," *Medical News*, II:202-206 and 233-236, February 19 and 26, 1887.

20. "Removal of the whole transverse colon and partial resection of the pancreas and large curvature of the stomach for carcinoma, with lateral suture of the superior and inferior mesenteric veins." *St. Paul Medical Journal*, I:162-175, 1899, (three illustrations).

21. 49th Annual Report of St. Joseph's Hospital for the year 1901 (1902).

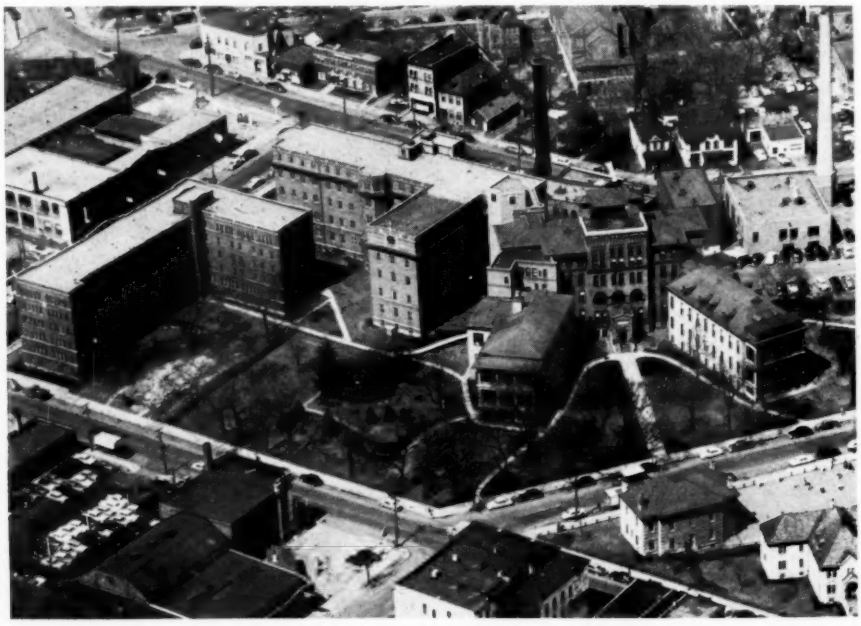
22. 52d Annual Report (1905).

23. 58th Annual Report (1912).

process, was moved to the north wing. In 1907 or 1908, St. Joseph's could also boast of a Turkish bath on the ground floor. In 1912, a Draeger pulmotor was added to the hospital equipment. This pulmotor was lent to any physician who needed it in his private practice.[23] Not until the 1920's were the operating rooms rearranged and remodeled. At this time, special space was provided for the exclusive use for surgery of the eye, ear, nose, and throat, and for cystoscopy. At this time, a special record room was established. The entire physical plant of St. Joseph's, indeed, had changed drastically since the early days. For example, a boiler house, providing some isolation rooms, went up in 1904; in 1915 the laundry and power house went into more ample quarters; the north wing was constructed in 1922; and the present home for nurses was completed four years later. In more recent years, the pediatric department, which originally began in one room on the second floor of the main building, was transferred to the west wing, where it occupied the entire first floor. The medical library, starting in the small space vacated by the pediatric department, was relocated in 1949 next to the Staff Hall. It now has over 4,000 volumes, including files of bound journals. Today, it serves doctors, interns, nurses, and all hospital departments with regularly received medical journals to the number of seventy and with some thirty educational and recreational magazines.

St. Joseph's Hospital always, whether the pace was slow or rapid, has moved forward and always has sought to serve the community in the best possible manner. But the need for enlargement is ever present. Not even the relatively new outpatient department, the recent remodeling of the laundry, the erection of a new power house, and the construction of new quarters for interns —not even all these—and more—advances can satisfy an institution dedicated to service and determined to advance with the times. St. Joseph's Hospital must continue to grow as it has matured during the past. Sister Edith catches the very spirit and soul of the institution when she lets the hospital speak for itself in these modest, but ringing, words: "It is a strange feeling to be one hundred years old. My brick and mortar attest my age, but I do not think my spirit does, nor that I ever will grow old and cold."[24] Yes, this is a centennial year for many institutions in Minnesota, but none of the others can look back upon such a span of service to alleviate human suffering as can St. Joseph's. All Minnesota is grateful!

24. *The St. Joseph Square*, I: No. 1, January, 1953.



St. Joseph's Hospital as it appears today.

SOME PERSONAL OBSERVATIONS ON THE USE OF ROUTINE CHEST RADIOGRAPHY

RICHARD TRAIL, M.D.
London, England

I AM deeply grateful for the signal honor you have conferred on me by designating me a St. Joseph's Hospital Centennial Lecturer. Of this honor I am the more conscious because I am addressing a community which is, in the truest historical sense, a descendant of the early foundations for the care of the sick, since you administer your hospital on the prime fundamental for success, a balanced combination of the spiritual and material in the treatment of chronic illness. Your proud record in medicine and surgery shows that you have had a continuing eagerness during the past hundred years to apply every scientific advance, but that you have never forgotten that the technique of things is ultimately useless without the technique of people, for the restoration of the spirit towards the renewal of living is something above and beyond the mere application of non-human technical processes, which can never achieve more than the preservation of existence.

As you were the first private hospital in Saint Paul to use it for the examination of all admissions, I have chosen to talk on routine chest radiography. I crave your indulgence to use this opportunity to say aloud some personal thoughts on the general deductions that have been made from its broad lessons, on its future application, and on the responsibilities that appear to me to follow for the physician, the radiologist, and the epidemiologist in the field of pulmonary tuberculosis.

What are the broad lessons of routine radiography? It can disclose an abnormal lung shadow, which may prove on full investigation, clinical, laboratory and radiological, to be phthisis of any extent from early to advanced, active or inactive, for which the individual has never felt compelled to seek advice. Thus, of the first eight million civilians who were mass x-rayed from the population of England and Wales thirty-four per ten thousand males, and thirty-five per ten thousand females were considered to have, at first examination, unsuspected active disease, while roughly double that number were considered to have unsuspected inactive disease. It has shown that the majority of exudative lesions in adult life are due to previous post-primary deposits of adolescence and early adult life, which had developed and reached quiescence without the knowledge of the individual. We now know that a chest found clear of any recognizable x-ray lesion up to the age of thirty is very unlikely to develop phthisis at any future examination, and also that while there is less than the average steady over-all improvement in the mortality and morbidity of young females, in males there is a progressive forward shift of mortality into age groups over forty-five. In our realization that no one over the age of forty with symptoms of chronic bronchitis should be labelled as such until he has been proved definitely non-tuberculous we have learned much about the sources of infection in young adults, and in particular in those closely exposed to contact, such as nurses and medical students. A study of the histories of unsuspected active cases has taught us that the evidence of morbidity progresses from the symptomless stage to the stage of systemic disturbance, in most cases in the order from cough to dyspnea on exertion, lassitude, loss of weight, pain, dyspepsia, night sweats and hoarseness. But routine radiography has done something which I consider even far more important to humanity. It has turned our thoughts towards a fuller understanding of the origin of many chronic illnesses, towards new ideas in the prevention of morbidity through the prevention of that breaking of the spirit that so often precedes it.

These broad lessons have had marked effects on the attitude towards prevention, diagnosis and treatment. The honesty of the chest physician has recoiled on himself. Because he knew that in its early stages a progressive disease can be a silent pneumonic process, possibly established for weeks or months before the sufferer is aware of its subjective and systemic effects, he pleaded for the introduction of routine x-ray examina-

Read at the Centennial observation of the founding of St. Joseph's Hospital, Saint Paul, Minnesota, May 16, 1953.

tion of the supposedly healthy. He knew that to wait for added sounds, which the general practitioner had been taught to consider as the only finding to emerge from physical examination, was to wait in a large majority of cases for established fibrosis and cavitation. In records of patients seen between 1924 and 1933, I found over 20 per cent with a history of inefficiently treated hemoptysis or pleurisy three to five years before the appearance of positive sputum, which had apparently been taken as the only indication for the commencement of treatment. The anxiety for earlier diagnosis has had its reward, but with the result that the standing of the radiologist has been advanced in proportion as that of the chest physician has receded in the opinion of the public and of the general practitioner, while all three, practitioner, radiologist, and the lay public alike, have failed so far to realize the new problems of the chest physician over the disposal of the individual with an abnormal film. Meantime we have heard epidemiologists, alarmed at the discrepancy now disclosed between notification and incidence, demand that the law should enforce attendance at all public and special sessions for mass x-ray surveys, and should follow this with the compulsory segregation or isolation of every individual proven to have active disease. Others, recognizing that this new method has raised fears, both true and imagined, among nurses in sanatoria, have pleaded that it should not be extended unless we can give adequate hospitalization, which is already impossible for some 75 per cent of those known to require it.

For the trends against himself the chest physician must bear some of the blame. For years he had been undermining his own position. By his increasing reliance on serial x-rays for the conduct of treatment he had fostered the erroneous belief of the general practitioner that clinical examination is superfluous; in his growing preoccupation with physical and specific therapy he gave the impression that the men and women under his care were mere containers of disease; he has, therefore, now no ground for complaint against the deservedly high reputation of the psychologist in sanatorium practice. Thirty years ago the chest physician treated the patient who had disease; twenty years ago he begun to treat the disease in the patient; now he tends to treat the film of the disease of the patient. The experienced physician in the person of Dr. Pottenger realizes this when he says, in *The Fight Against Tuberculosis,* "Today the chief early treatment of so many patients seems to be x-rays." The view of the psychologist is equally aptly expressed by Harry Wilmer in *This Is Your World,* when he writes of the dangers of treating the patient,

> "As a case—a number
> A motionless object
> Upon a Procrustean bed
> Limited at the beginning by an x-ray
> And at the end by another."

Little wonder the radiologist has stolen the thunder and that he often resented the appointment of a chest physician as director of the early mass radiography units. I admit that I am biased, but this is, I honestly believe, the bias of experience. I do not think we have yet arrived at the position where a general radiologist can be asked to view a film and to say whether it shows the presence of phythisis which is active and clinically significant. I believe it is for the benefit of the individual with an abnormal film, and for the benefit of research, that mass x-ray units should be under the direction of a physician who can write his film reports from both the descriptive and the interpretative aspects in the light of his clinical findings. So far, no film can be said to be typical of any one chest condition, in view of multitudinous and individual variations. We do not even know for certain the cycle of lung tuberculosis from primary focus to established sub-clavicular disease. What is far more important, we have no clear principles to guide us on the grave decision on when to change a person into a patient but must still rely on the personal experience of the observer. Great contributions to advancing knowledge on the significance of abnormal films and on living pathogenesis can be made by the physician who has full facilities in bed observation, and in laboratory equipment that can help him to reach a final diagnosis for every abnormal finding. On the other hand, I admit freely that the proper development of any specialism must depend on the prevention of its boundaries from becoming static and exclusive. If therefore the radiography unit director can call on the radiologist to aid with the mechanics of apparatus and darkroom technique, and to add his opinion in the anomalous and difficult

case, both can work towards much needed national and international standardization. It is well known how often slight variations in technique cause great difficulties for both in the reading of serial films. Agreement on size of large film, on positioning, on centering, on distance of focal spot, on exposure factors and on developing processes would bring decided advantages. Descriptions of findings should bear a meaning similar to all who read them; radiologists, specialist physicians and surgeons, and general practitioners alike. At present, we have no common ground even on the localization of disease in description, and still less on the definition in interpretation of such terms in common use as mottling, reticulation, infiltration, fibrosis, emphysema, collapse and atelectasis. We have no international usage on the nomenclature of the main bronchi and pulmonary segments. Meantime, our difficulties increase. For example, it has become fashionable to use a new, purely radiological term, "minimal disease." Even if we could reach agreement on the size of the lesion it describes it would still remain far too indefinite; to the chest physician it conveys nothing of the components or nature of the lesion, and therefore nothing of prognosis, and we cannot blame the general practitioner if he concludes that it means in every instance disease of minimal significance.

The time is ripe also to attempt to see in proper perspective the impact of routine mass radiography findings on our knowledge of morbidity. The number diagnosed as active following any first survey cannot give a true assessment, as many of them reach without illness the quiescent stage found in double their number at that same examination. Some writers believe that although the death rate is only a poor index it is possibly the only one that can be comparable in the light of the conditions of the past twenty years, during which methods of diagnosis have developed so quickly. Even here there is a danger that in our new enthusiasm we are including cases where routine postmortem shows some small lesion that had no clinical significance during life, and no effect in accelerating death. There is no doubt, however, that we must have measures aimed at effective notification. As matters stand at present in Great Britain, no reliance can be put on notification rates as an indication of real incidence as long as the chest physician of a large county borough can report that in 1951 his clinics diagnosed 412 new cases, of whom only 158 were notified by their general practitioners. Naturally, if we now take this matter more seriously we shall get an apparent increase for some years, but this might well offset the unchanging figures of notification only at death, and so disclose more of those sources of infection over which we can at present take no action for the public good.

We must beware, however, of everything that will savour of unwarranted interference with individual liberty. It is well to remember Sir James Kingston Fowler's dictum, "Once notified, always tuberculous." I cannot believe that any good would come from attempts at forcible attendance at clinics or compulsory isolation of the infectious. Indeed, we have no criterion for infectivity as long as we continue to count as equally infectious the patient with bacilli demonstrated only to a single stomach washing and the patient with clusters of organisms to ordinary smear-slide examination. Theory and experience are entirely contradictory. Our anatomists tell us that the arrangement of the bronchi and their ciliary linings ensure that only rarely can droplets of sputum containing a very small number of bacilli reach the pulmonary alveoli, while we know as physicians that close contact can produce in tuberculin negative reactors both morbidity and mortality. Yet, in spite of our justified anxiety over infection, it still seems better to me to rely on the slower methods of education than on any form of compulsion, which I find abhorrent as giving only an official blessing to social ostracism of the tuberculous. All such measures can do is to produce a class of the tuberculous that will be frankly asocial, and to encourage in the mind of the adult worker the association of x-ray examination with disease, and of disease with economic disaster. If we must have legislation then let it be towards protection against victimization and loss of employment.

A far better course would be for us to use our energies for the wise adaptation of our resources. We know that the cost of surveying the whole population would be prohibitive but we could work towards two definite objects, first the examination in industries and groups known to give the highest proportion of positives, and the combination of routine radiography with tuberculin testing with the object of helping future generations. I believe we should now institute

routine tuberculin testing of infants at welfare clinics, referring to the chest clinic for x-ray examination every positive case. With the knowledge that a recent positive would almost certainly mean recent infection, the family physician would be notified of the urgent necessity for the x-ray examination of all contacts. Where the child's x-ray is abnormal there would be immediate reference to a pediatric unit. Routine testing should be continued at intervals during school life and combined with full examination of all those, such as teachers, who come in close contact with organized groups of children. As finances allow and experience increases, the scheme might be extended into adolescence and early adult life, in its earlier stages including the routine examination in factories and offices of Senior Executives whose work brings them in close contact with adolescent employes. As Myers has so truly said, "As long as we are content to allow primary lesions to go unnoticed and to begin treatment after illness or demonstrable x-ray disease, we can hardly expect to cure tuberculosis." He goes on to say that we must find some antibiotic that can be given with saftey immediately after the appearance of a positive tuberculin test.

This is tantamount to say while we believe we know what might be done toward the prevention of primary infection, we have still a long way to go in the production of active measures towards the prevention of post-primary morbidity. I believe, however, that there are now indications of a possible solution of some part of this problem. Experience over the past thirteen years of the growing necessity to pay attention to the life history of the individual with unsuspected active disease has made me ask myself many questions. Why is phthisis still "The Captain of the Men of Death" at the ages most important for national economy? Have we become so intent on treatment, physical and specific, that we have ignored the forewarnings of morbidity disclosed in the stories of the hopes, fears, and spiritual outlook of our patients? Was Sir Robert Philip correct in his forecast that the tubercle bacillus would become "the new pet?" Are we to accept without humility and without speculation the known facts that morbidity decreased rapidly in America and Western Europe between 1850 and 1910 when no National Anti-Tuberculosis Campaigns existed; that, in spite of this, morbidity and mortality in adolescence and adult life continues; that two-thirds of all post-primary lesions attain arrest without our intervention and yet we fail with considerable numbers of those to accept it?

Six years ago I wrote what I still believe, that the sanatorium which relies on a fixed routine, however good, and believes that it has reached perfection merely by employing the latest mechanical aids of surgery, may succeed in preserving the lives of its patients but will not renew them. Such a sanatorium demands no faith from the patient and no moral standards in a physician; it is merely materialistic. What it lacks is the aid of the psychologist and the aid of the priest, each confining himself to his own sphere and working in full co-operation with the physician. In other words, I believe that we must retrace our steps in our attitude to all chronic illness, and in particular to phthisis, in the knowledge that "Where there is no vision, the people perish." Unless we get to know why some people become ill, while others keep well, we shall never understand the fundamentals of preventive medicine. Holding fast to what we have learned of the material aspects, and therefore avoiding the quackery of non-scientific so-called "Spiritual healing," we must again work through and beyond the intervening help of the psychologist toward the renovation of the spirit by the priest that was so well understood by the early Christian Church. Thus, we shall begin to study man in his wholeness, body, mind and spirit, and in regaining our position as physician-educators make a real contribution to the healing of the nations.

A REMINISCENCE OF CERTAIN EVENTS BEFORE, DURING AND AFTER THE DISCOVERY OF CORTISONE

PHILIP S. HENCH, M.D.
Rochester, Minnesota

IT IS AN alarming variation from the normal when a grand old lady on *her* one hundredth birthday welcomes a *somewhat* younger visitor and says: "Now do tell me all about yourself!" But that is more or less what your Vice-Centenarian, Dr. Briggs, has asked me to do.

Hanging in my son's room is a supposedly impressive copy of the Hench family coat-of-arms. It is beautifully drawn in bright colors, and if it isn't authentic, I'm out $20.00! My son's father gave it to him in an uncertain attempt to convince him of the "respectability" of his family, a proposition which nowadays young folks so often challenge.

Perhaps my son's incredulity is well founded. At least one rumor has it that our European ancestor of 1600 A.D. was euphemistically called "the Robber-knight" of Württemburg. In that case he was, I fear, more red-blooded than blue-blooded.

Although the color of my blood may be somewhat lacking in "quality," my spiritual inheritance has been definite and positive. The central faith of my fathers, though derived from several Protestant theological origins, has always been a strong and happy allegiance to the Christian faith. Thus, I have felt completely at home as I have spent all but one of the thirty-five years of my hospital life in institutions operated "For the Glory of God" by dedicated members of your great Catholic faith.

My Thirty-four Years in Catholic Hospitals

I began my career in Catholic hospitals in that terrible autumn of 1919 when my medical school was closed during the emergency, and when, with classmates, I was removed precipitously from the Medical Enlisted Reserve Corps to serve as a student-intern in a small hospital suddenly deprived of its graduate staff. At the old Pittsburgh Hospital, I certainly "practiced medicine." Were the worthy Sisters (the Sisters of Charity of Mother Seton) alarmed by my efforts? I never knew, for all they asked was that we do our best.

Then came training in Pittsburgh's Mercy and St. Francis hospitals, and in 1922, by an accident of fate, I became the first, and for a while, the only medical resident at St. Marys Hospital in Rochester, Minnesota. A little later, the Mayo Clinic's first service for rheumatic diseases was established at St. Marys Hospital where thousands of our rheumatic patients have been ministered unto by Sisters Joseph and Domitilla, Sisters Rebecca and Mary Brigh, and above all, by Sister Pantaleon, my invaluable colleague for twenty-three years (since 1930).

Now if one is careful enough, a man *can* serve two "masters." Despite my professional allegiance to St. Marys Hospital, I fell in love with the daughter of Mr. John H. Kahler, the founder and president of Rochester's other hospital system. Some of you may have known Mr. Kahler, a loyal and distinguished citizen of Rochester and of Minnesota.

In due time (it seemed an awful long time!), I became Vice-President of the Kahler Hospital and Hotel Corporation. Can I convince you that my appointment had nothing to do with inheritance, but was strictly a matter of merit? Despite this appointment, I have never for one moment been tempted to move our service from St. Marys to the Kahler Hospitals. Sometimes I've wondered whether, as an officer of the Kahler Corporation, I have not unconsciously thought that the Corporation would be better off if I stayed at St. Marys as long as they would have me.

Welcome to the Flemings

Sir Alexander and Lady Fleming: Mrs. Hench and I wish to add our own welcome to the warm ones you have already received. I believe this is Lady Fleming's first visit to Minnesota, but you, Sir Alexander, are no stranger here; we recall with pleasure your visits to Rochester in July, 1945, and in 1949.

And now Mrs. Hench and I share with you a very special experience: twenty-six years ahead of you, we also spent, at the St. Paul Hotel, part of *our* honeymoon.

You come from a wonderful country, one whose

From the Division of Medicine, Mayo Clinic, Rochester, Minnesota.

Remarks made at the Centennial of Saint Joseph's Hospital, St. Paul, Minnesota, May 16, 1953.

stability and propriety have been the admiration of the world. Happily, Mrs. Hench and I know it well and have many friends north and south of the Cheviot Hills. In exploring the cities and villages of Great Britain, Mrs. Hench and I tried to follow the prescription of Rarus which, I believe, every traveler would find invaluable. Said Rarus: "Pray tell me what sort of people you found them. What do they do? Are the men likable? What do the women look like? Of their inns and how they live. Of their work and how they do it:—if there be unusual rogues among them I care not, for well I know that honest men outnumber them. Then tell me of their good and valiant King and Queen, and if the country be prosperous—and how much my money will buy there, and I'll thank ye, and I'll seek the rest for myself."

We Americans ask of our distinguished visitors from London no more than that: With this formula they will find the friendly heart and firm faith of our country.

The Tragedy of Rheumatism and Arthritis

But I've been asked to talk about something other than travel, something less pleasant than honeymoons though hardly less common, namely rheumatism, the tragedy of rheumatism and arthritis, and also something of the discovery and clinical application of cortisone.

Most of you, whether you be physicians, nurses or laymen, have an interest in rheumatism because so many people have one kind or another. How many people? Well, more than 10,000,000 Americans have some sort of rheumatism (according to the latest Public Health Survey), of which about 7,000,000 have some kind of chronic arthritis.

That would make a huge city almost twenty-five times the size of St. Paul, in which every man, woman and child suffered from chronic arthritis, or a city about nine times the size of St. Paul and Minneapolis together (assuming, of course, that you can get St. Paul and Minneapolis together). Or it would be the same as if almost everyone in New York City or in London, England, had rheumatism or arthritis.

Think of the pain, disability, frustrated hopes and economic loss! But let's put it another way. Just suppose that chronic arthritis affected every American with our eleven most common names—Smith, Johnson, Brown, Miller, Jones, Williams, Davis, Anderson, Wilson, Taylor and Thomas. Think of everyone you know by those names. Put together every American so named, and that's how many people complain of chronic arthritis.

Of course, a lot of them have a mild form, osteoarthritis, which comes with age. But about 3,000,000 Americans have the form we worry about most, rheumatoid arthritis.

The Pessimistic Attitude Toward Rheumatic Diseases

When I was a medical student in Pittsburgh and a fellow of the Mayo Foundation, physicians were pessimistic about the rheumatic diseases, especially about rheumatoid arthritis. They shared the opinion of Sir William Osler, who is reported to have said: "When an arthritic patient walks in the front door, I want to run out the back door!"

Rheumatoid arthritis was considered a relentless progressive disease. Therefore, I too was not optimistic when, on April 1, 1929, I went to see another rheumatoid patient. But he was different from any I had ever seen before.

The Ameliorating Effect of Jaundice

For a long time, this patient's joints had been painful and swollen. Then one day yellow jaundice developed and almost immediately the painful swelling began to disappear. When I saw him a few days later, he had practically no rheumatism.

Thereafter, on the lookout for this phenomenon I saw it happen fifteen more times during the next five years. Only one conclusion was possible. Contrary to the belief of centuries, rheumatoid arthritis must be potentially reversible, and rapidly so.

But what unknown "antirheumatic substance X" developed during liver disease with jaundice? Attempting to identify it, my colleagues and I gave arthritic volunteers various products of the liver, singly and in combination. But nothing happened to the arthritis. Despite this, the conviction developed that substance X was something normally present in our bodies, of which substance the arthritic patient did not have enough.

Beneficial Effect of Pregnancy

Then I became equally impressed by a strange occurrence which we and others had noted previously but to which we had not paid sufficient attention. When a rheumatoid woman became

pregnant, she usually lost her arthritis for several months. Over a period of eight years (1931 to 1938), we studied this phenomenon as it developed thirty-four times in twenty women. As a result we changed our ideas as to the probable nature of substance X.

During pregnancy, a number of steroid hormones of the body are changed profoundly. Assuming that the unknown substance X of pregnancy was the same as that of jaundice, we began to suspect that the mysterious substance was neither a product of the liver nor a female hormone but might be a steroid hormone common to both men and women. But what hormone? And from which bisexual gland? Among the possibilities listed in a 1938 paper, I included the adrenocortical substance, "cortin," but we did not try it till three years later.

Relief of Other Diseases by Jaundice or Pregnancy

Between 1929 and 1938, I regarded substance X as essentially antirheumatic. But then it came to my attention that pregnancy and jaundice sometimes relieved a number of other conditions, in particular certain allergic conditions, such as hay fever, asthma, migraine headaches and sensitivity to certain foods. This observation added excitement to the search because I now suspected that if substance X could be identified and prepared it would work against several diseases, so I began to speak and write of it as the "antirheumatic and antiallergic substance X."

Could Substance X Be An Adrenal Hormone?

I assume that you all know by this time that I am not a chemist, but a rheumatism specialist. Now, in the years I've been talking about, my title was, to be more correct, a *"mere* rheumatism specialist." In those days, that specialty had so little appeal that I'm sure many regarded our department as the "soft under belly of the Mayo Clinic!"

In any event, I very much needed chemical help, and sought it from various colleagues, especially Edward C. Kendall, chief of the Division of Biochemistry. Prior to 1938, my conferences with Dr. Kendall were infrequent and casual. But thereafter he became my chief collaborator. As we tried on innumerable occasions between 1938 and 1948 to conjecture what might be the chemical nature of substance X, neither of us knew that he and his associates, working on the adrenocortical compound E in his laboratory a few yards away, were at the very moment trying to isolate, identify and synthesize substance X or a reasonable facsimile thereof.

Let's Try Compound E

It would not be proper to infer that my confidence in the validity of these developing concepts was constant and unwavering. A few basic facts had been bound together with subtle suggestions and reasonable presumptions, but it was frankly recognized that the latter might be erroneous no matter how logical they appeared. Hence various possibilities were still entertained, and certain empiric procedures were carried out including the use of adrenal lecithin. But again the results represented "failures."

As time passed, our interest focused more clearly on the adrenal cortex as the possible source of substance X, and during one of our conferences in January, 1941, Dr. Kendall and I decided to administer to rheumatoid volunteers the substance, 17-hydroxy-11-dehydrocorticosterone. But our decision could not be carried out then, because in the whole world there wasn't enough of this material for a single patient. However, the decision to try it out was recorded in my notebook and remained attractive through the several years of waiting. We did not know then that almost *eight* years would elapse before we would have enough for our first volunteer.

In place of this substance, my colleague, Dr. Charles Slocumb and I, in 1941, gave to certain arthritic patients the adrenal cortex extract, "cortin," made for us by Dr. Kendall. Results were not impressive. With no likely product available to us, we then produced (with time out for military service) "yellow jaundice" by giving to a few arthritic volunteers a synthetic compound called "lactophenin." Temporary remissions developed but we could not identify the responsible agent.

The year was 1948, *nineteen* years since these studies on pregnant or jaundiced arthritis had been started; yet we could not be sure that we were a millimeter nearer any solution. For *ten* of those *nineteen* years, Dr. Kendall had been helping Dr. Slocumb and me in some of his spare time, "with his left hand," so to speak. But for *nineteen* years his right hand had been intensely preoccupied with a problem which at first seemed remote from ours, but which, as time passed, became more and more interrelated.

Isolation, Identification and Preparation of Cortisone and Hydrocortisone

Having been, in 1914, the first to isolate the thyroid hormone, thyroxin, and having been the first to announce, in 1929, the precise chemical nature of glutathione, Dr. Kendall made attempts, in 1930, to isolate, identify and synthesize the unknown hormone or hormones of the adrenal cortex—a problem which was to afford him his bitterest disappointments as well as his greatest satisfaction.

To the tremendous difficulties inherent in this problem, there was added from the very beginning an inescapable, ever-present tension, because other chemists had chosen the same objective. Thus began a dramatic scientific race, chief participants being Wintersteiner and Pfiffner, at Columbia University, Reichstein and his associates, in Switzerland, and Kendall, Mason, McKenzie and Myers, of the Mayo Foundation.

During the next four years, Kendall and his associates separated a very small amount of crystalline material which was at first hopefully regarded as the one compound, *the one* hormone of the adrenal cortex—probably cortin. To their surprise, the material turned out to be a mixture of several closely related crystalline compounds. Their chemical nature and physiologic effects (if any) were unknown.

Then, in 1935, what had started five years before as a competitive race, turned into a highly productive relay race as the participants "leap-frogged" each other with interrelated discoveries. Crystals began to precipitate out almost simultaneously in New York City, in Rochester, Minnesota, and in Switzerland. In all, twenty-eight compounds were separated but still only in relatively minute amounts, insufficient to give to human beings, for it took, for example, 3,000 pounds of adrenal gland to produce about 1 gm. of one of the compounds (Compound A), 1 gm. being the weight of three aspirin tablets.

It took ten years (1930 to 1940) for Kendall, Reichstein and their associates to separate and identify these compounds. Then when small amounts were given to animals, it looked as if only four of the twenty-eight compounds might be worth anything, that is that they might actually be "finished glandular products" or true hormones with physiologic potency. The four which seemed to hold promise of usefulness were: 11-dehydrocorticosterone which Kendall called "compound A"; corticosterone, which was Reichstein's "substance H" or Kendall's "compound B"; 17-hydroxy-11; dehydrocorticosterone, designated "compound F" by Wintersteiner and Pfiffner, "compound E" by Kendall and his associates and "substance Fa" by Reichstein and 17-hydroxy-corticosterone, Reichstein's "substance M" or Kendall's "compound F."

The Preparation and Trial of Compound A: A "Dud"

Since it was impossible to separate from the glands of animals enough materials for practical use or even for any adequate trial in human beings, it became necessary to make them artificially, that is to prepare them "synthetically" from some more available source. This was the most difficult part of all, because no chemical so complex had ever been made by man. The only ones bold enough to begin and continue the task were Kendall and his associates in Rochester and the research chemists of Merck & Company. After five years of prodigious work, compound A was at last prepared, but when given to a patient with Addison's disease it proved to be useless.

Preparation of Compound E: First Usage

Disappointment was bitter in 1946. But these men of faith and fierce compulsion determined now to make compound E (Kendall) as the last try. Finally in May, 1948, using methods devised chiefly by Kendall, of the Mayo Foundation, and by Dr. Lewis H. Sarett, of Merck & Company, the company had on hand a few grams of compound E made from animal bile. The first precious supply of the new compound, ready after infinite labor, was given to three endocrinologists who found it useful in Addison's disease, a condition so rare that it alone did not justify continued production. At this point, Messrs. Merck, Kerrigan and their associates were men with a substance (compound E) hunting for some unknown condition which it might affect, while I remained a man with certain diseases hunting for an unknown compound (substance X) which might affect them.

For the moment, then, Merck & Company knew of no other sponsor and of no other use for compound E. Thus they had on hand a little unassigned compound E which Dr. James Carlisle and Dr. Randolph Major sent me (somewhat reluctantly) in answer to my letter of September 4, 1948.

For our first rheumatoid patient, Dr. Kendall and I decided to use the seemingly enormous dose of 100 mg. daily simply in order that we might not commit the error of underdosage. Thus on September 21, 1948, my colleague Dr. Slocumb began to administer this amount daily to our chosen patient. The antirheumatic effect was unlike that of any previous remedy, or of any agent except pregnancy or jaundice.

First Use of Pituitary ACTH (Corticotropin) and Hydrocortisone

Against Arthritis.—A few weeks later we requested and received from Dr. John Mote of The Armour Laboratories, a very small supply of another hormone which it had taken other scientists thirteen years (1933 to 1946) to isolate and prepare. This hormone, ACTH (now called corticotropin) derived from the pituitary gland, was supposed to stimulate a patient's adrenal glands to an increased output of cortical hormones, including compound E. We were concerned briefly lest the arthritic patient's adrenal glands might already be making an abnormal or toxic product: if so, the ACTH might aggravate, rather than help matters. When its effects resembled those of compound E, we were relieved (February, 1949).

A month later (March, 1949), Drs. Slocumb, Polley and I received from Dr. Harold Hailman of The Upjohn Company just enough compound F free alcohol (Kendall) to use for twelve days on one patient. Its effects were comparable to those of compound E and of ACTH.

Against Other Diseases.—Meanwhile remembering the old conjecture that our hypothetical "antirheumatic and antiallergic substance X" ought to be effective against, not one, but several diseases and types of diseases, my colleagues and I gave compound E to our first few patients with rheumatic fever, hay fever, lupus erythematosus and three or four other diseases, and were happy, but not too surprised, to note the results.

Wide Application to the Field of Medicine

Much of what has happened thereafter is, I believe, known to you. Writing a brilliant chapter in the history of pharmaceutical manufacturing, Merck & Company accomplished "the impossible," and within two years, compound E was available to every research worker and physician in the United States.

Incidentally, Dr. Kendall has reminded me of an expectant mother who is so preoccupied that she never gets around to choosing a name for her offspring. And so in the early days when I objected to using its chemical name (Can you blame me? I could hardly pronounce it.) and when I asked Dr. Kendall to suggest a permanent substitute for the nondefinitive term "compound E," he soon gave me, without enthusiasm, a piece of paper with the abbreviation "corsone" written on it. But he did not mind when I wrote underneath his suggestion my own amendment, "cortisone," and thus it was "baptized."

In the past four years the manifold effects of these new hormones, cortisone, hydrocortisone and corticotropin, have been studied by a host of scientists all over the world. These powerful substances exert a marked influence on many conditions. But just how they work is still, to use a churchillian phrase, "a riddle wrapped in a mystery inside an enigma." But their action differs from that of any other beneficial agent. They do not kill germs, nor do they "cure" the responsive diseases in the ordinary sense. But they protect in a peculiar way our tissues from the effects of a wide variety of toxic or irritating substances. Thus, they usually suppress markedly (but only as long as they are given) the symptoms of many diseases. I strongly objected to an early hyperenthusiast who compared these hormones with an advertised soap which supposedly "does everything." But they do appear to be of considerable value in about thirty or forty conditions, often providing results superior to those from any previous remedy. Thus they appear to have hit the Achilles heels of several diseases whose armor, heretofore, has been invulnerable.

Many chemical problems remain unsolved. A surprising number are in process of solution. Many clinical controversies are to be settled. But these hormones, perhaps the most powerful ones ever discovered, provide indispensable research tools for a myriad of fundamental investigations. Hence, I will prophesy with confidence that, like the Fuller brush man, we have only one foot in the door so far, and this is merely "the end of a beginning."

The preparations we are now using, and the way we are using them, though superior to those of even a year or two ago, will most assuredly be improved notably. Of course, everyone wants the future *now*. But the impatient, the frustrated and the faint-hearted should meas-

ure a remark by Dr. Kendall: "In the search for truth, time has no meaning."

And so, far into time, investigators will find and follow new clues related to the cortisones and the corticotropins. They will be in restless competition, not with each other but with yesterday's mind and truth. But as they, by time and testing, discover a new fact here and another one there, they must meet these truths with humility, not as cold scientists rewarded by cerebral self-satisfaction, but as men whose hearts keep step with their minds and as becomes the inquiring physician who realizes that any single truth, no matter how impressive or useful it may be, is only an infinitesimal fragment of what is the whole truth as it is known to The Great Physician.

The Nobel Prize and the Nobel Festival

During my last visit to Stockholm, friendly reporters asked all sorts of questions. One reporter asked me: "How do you go about winning a Nobel Prize?"

That reminded me of a story: A fifty-year-old man announced that he had $100,000 in the bank and was retiring. A friend asked him, "In these days of high taxes, how did you manage to save $100,000?" The man replied: Well, I've worked very hard for thirty years; I've rarely taken a vacation; I've saved every dollar I could, and I've just received from my uncle's estate $95,000."

I think that's about the way one wins a Nobel prize, by having the right relationships. We live in a country where freedom of inquiry is still possible, where research is encouraged and supported, and is still a matter of free enterprise. My colleagues, Drs. Charles Slocumb and Howard Polley, and I, had the unfailing support of the Mayo Clinic and Mayo Foundation. But considering personalities rather than policies, I was fortunate in the selection of two people: a long-suffering, self-sacrificing, loyal and understanding wife who created a home of happiness and peace so necessary for an investigator (especially a frustrated one), and Nick Kendall, one of the world's preminent chemists, perhaps the one man in the world who could have given *both* the advice and the materials which were required.

The Nobel ceremony of 1950, which Drs. Kendall, Reichstein and I attended, had a special significance, for it commemorated the fiftieth anniversary of the awarding of the Nobel Prizes. About thirty of the 100 living laureates of previous years were on hand, among them Sir Alexander Fleming.

This "Solemn Festival of the Nobel Foundation" as it was called, was an occasion of outstanding dignity and beauty. For one of the newest laureates, it was also an event of spiritual significance. I found myself seated with four great chemists, an atomic scientist and two men who are supremely capable in the fashioning of words. Although we were separated by nationality, interests and the category of our prize, none of us was alone. The life of each of these laureates had been, or could be, profoundly influenced by the work and hopes and dreams of the others.

To me it was a living demonstration of the internationality and of the brotherhood of science, and of the essential unity of Truth. For any truth is everybody's business.

In Conclusion

In conclusion. let me refer again briefly to cortisone. To be useful, to perform its appointed function in the human economy, cortisone possesses a distinctive characteristic. It must have an oxygen atom at position 11. Without this it is not cortisone but a useless, inert substance.* With this character it is a thing of power. So too, of men and organizations: To fulfill a useful destiny, they must be distinguished by having character, above all a sense of responsibility to their Creator and to their fellow man.

Such an attitude must have been possessed in outstanding measure by the founders of St. Joseph's Hospital, and by those who have since given to it their accumulated devotion that it might accomplish its long century of service.

To come here today to pay my small tribute to the men and women of this institution and to its honored past, has been a pleasant and satisfying experience.

To St. Joseph's Hospital may I make this salutation: Alert centenarian, well postured by worth and justified pride, long may you continue your combat against suffering and diease, those twin indignities on the useful development and happiness of mankind.

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*It would be "substance S," isolated by Reichstein.

PSYCHIATRY AND RELIGION

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IT IS an honor to join with this distinguished group of scientists to celebrate the hundredth anniversary of the founding of a great institution, St. Joseph's Hospital, and to pay tribute to its valiant band of founding sisters and their spiritual descendants. We, as visitors, can know but little of the privation and sacrifice which goes into the building of a hospital of this renown, from its log cabin beginnings to its present honored status. We can only register our respectful appreciation of the great staff, religious and medical, whose privilege it has been to contribute their services to the hospital in the century of its existence. In tribute to all of them we reiterate with Sir William Osler that "there is no higher mission in this life than to serve God's poor."

When this subject matter was suggested to me, I wondered about the propriety of such a presentation on a program graced by world famous medical scientists, justly honored for their outstanding researches, and yet, as one considers it, such a discussion is not unseemly, for the problems to be treated under these headings are pressing and they require clarification and understanding. Here are involved the difficulties and differences of opinion of a medical discipline and religious belief treating of two aspects of a man's life which should never be at variance, for together in concerted action they have sustained man since the beginning of civilization. It is fitting to air these problems in this setting, which is dedicated to both medicine and religious belief and which, in the dignity that age has given it, is tolerant of new ideas as long as they are helpful to the physical and mental well-being and the spiritual growth of man.

In the era in which this hospital was founded but little attention was paid to mental disease, though its history was as old as man. There were no practitioners of psychiatry as such: there were alienists, a few of them, but they were concerned mostly with the legal problems which the mentally ill presented. The basic medical sciences were advancing rapidly and with them went a mechanistic and materialistic outlook, in which more often than not the disease process was sought out and the individual who had the disease was forgotten.

Definitive treatment and research in mental illness were unknown at the time and even the care of these patients was altogether in isolated rural institutions and on the outer fringe of medical practice. To be mad was to be mad, even as it was in Shakespearean times and even general hospitals under religious auspices were reluctant to provide for the mentally ill, who were regarded as a people apart. In some ways this was neglect of a heritage, for in the earliest city hospitals on record, those founded by Pope Innocent III, he had objured them especially to provide humane care for the insane in special "psychopathic" sections. It is noteworthy that only within recent years have psychiatric wards been re-established in general hospitals in response to the demands of the times and not infrequently with serious misgivings on the part of staff and administration alike.

This is not the place to recount the difficulties psychiatry has had in gaining acceptance as a branch of medicine nor to go into the reasons for it. Recognition was slow and suspicion of it has not been dispelled entirely even in the present day. Suffice it to say that the medical experiences in two world wars and the emergence of the concept of psychosomatic medicine have done much to effect closer rapprochement between medicine and what it has regarded as its errant adolescent daughter, modern dynamic psychiatry. This rapprochement comes none too soon, for there are at present several lay groups anxious to take over the medical art of psychotherapy, an eventuality which, should it transpire, would have devastating effects upon sick people and very seriously complicate the practice of medicine.

Psychiatry had had few problems and aroused little animosity in either practitioner or theologian as long as it remained behind large stone walls and cared for the the mentally ill—no one else wanted them. It was only when it emerged with concepts and a psychology of its own and

Real at the Centennial observation of the founding of St. Joseph's Hospital, Saint Paul, Minnesota, May 16, 1953.

entered into the treatment of emotional problems that it began to experience suspicion and distrust. This hospital had been founded for half a century before the ideas were promulgated which were to be the source of conflict, the advent of the doctrines of psychoanalysis, product of the genius of Sigmund Freud.

Brilliant pioneer that he was, Freud was a product of the materialistic society of the nineteenth century and there is little doubt but that he was strongly influenced by the zeitgeist of his time and its culture. A biologist who began as a neurologist, he was devoted to science, and yet, much of his work was unscientific. His ingenious observations and conclusions were made by intuitive interpretations, the least scientific of methods, and by his feeling for people rather than by quantification of controls and other hallmarks of the real scientific method. From his ventures into philosophy it was soon apparent that his orientation was materialistic and deterministic. Then, as Zilboorg notes, when he labeled religion as an illusion and regarded it as a compulsive neurosis, the theologians' worst fears were confirmed and the battle lines were drawn. Peculiarly enough, Freud arrived at his ideas about religion by an insistence upon the infallibility of his own methods and by elevating to the position of final causes the psychological mechanisms he was fortunate enough to discover.

Briefly stated, modern psychiatry has come under the anxious scrutiny of the theologians because they have been unable to correlate much of the philosophy of analytic doctrine with traditional Judaeo-Christian beliefs. This for them is no sterile philosophic quarrel; it is fundamental. In defense of their belief, some members of the clergy have attacked psychiatry, and particularly psychoanalysis, because they believe it teaches a destructive principle. Some psychoanalysts, in their turn, have questioned certain religious teachings and they profess to find in them the foundation of nervous disorders. They imply that in the light of their new findings the orthodox teachings of the Judaeo-Christian tradition should be examined and changed. Despite these apparently irreconciliable viewpoints, this conflict is not beyond satisfactory solution for it is difference of opinion between groups which are looking only at accidental segments of the problem. Should ever the representatives of these opposing ideas be able to meet, the possibilities of mutual enrichment are many and the resulting common agreements would go far toward healing some of the emotional ills of modern man. The ancient ideas of Thomas Aquinas would lend substance to the thinking of the modern psychiatrist, while modern psychological insight into normal and pathological reactions would be of aid to the theologian.

There is little disagreement with the statement that no single individual ever contributed so much to the knowledge of psychology and psychiatry as did Sigmund Freud. There is also general agreement that the methods of psychoanalysis, properly used, have opened a field which promises benefit to mankind of the magnitude of aseptic surgery and chemotherapy. The quarrel between analysis and religion stems not from the factual material or the techniques of psychoanalysis, for they are compatible with religious belief; rather the disagreement stems from the philosophico-religious overtones which accompany this psychological system. That the discoveries and methods of psychoanalysis can be used today without subscribing to the philosophy which accompanies it is an accepted idea among thoughtful scientists and theologians.

Karl Stern has pointed out that this dynamic and phenomenological approach to psychiatry, which arose out of the depths of nineteenth century materialism, can be Christianized, whereas many other psychiatric methods, which in themselves look bland and neutral, may contribute to the tools of nihilist society. "It is the duty," he says, "of every psychiatrist who holds a spiritual concept of man to avoid all purely negative attitudes." He should accept all that is genuine in the psychological insights of Freud, Jung and Adler, strip it of all of its accidental materialistic superstructure and use it as an instrument of healing.

The physician who is not a psychiatrist becomes impatient at about this time and wonders just how important these differences of opinion really are. In truth, they are fundamental, for the philosophic overtones of the original analytic doctrine imply a reductive principle. In this system the God of Judaeo-Christian belief becomes a father image. In a manner similar to Copernicus, Freud centered the universe of psychologic relationship about parental images. Before this, in a

search for first causes man had seen God as the center of the universe. The Freudian doctrine saw the Oedipus complex as the center of human psychological affairs and thus, as Stern points out, with one change reversed the process and created God in man's image. Here was altered a monotheistic idea of almost 6,000 years' standing—it called into question the moralistic standards of a civilization and hung man precariously on the thread of a specious present. These concepts would set men adrift philosophically in what amounted to a psychological and spiritual revolution. It is easy to see that the appearance of these ideas would cause consternation.

On superficial examination it might seem easy to disentangle this philosophic superstructure from the facts which analysis demonstrates but in actuality it is not easy, for the doctrine has permeated deeply into the attitudes of the practitioners. It has been stated that, had Freud had a spiritual approach to the problem, it would not have shaken any of his fundamental discoveries, but rather with his genius he might have built a magnificent psychological structure. The fact remains that he did not and therefore, in the minds of many, the edifice which he began remained incomplete.

This rapid deviation of medical psychology into new channels found the philosopher and theologian unprepared for the empirical observations which it would present. Thomas Aquinas had left no special treatise on psychology in the modern sense of the term. Like his predecessors and contemporaries, he had no predilection for psychological facts as such. To him these facts were important only insofar as they related to the metaphysics of human nature or the ethics of human behavior. The reaction of the critics of this new doctrine was therefore of negative nature and, in the layman's mind, these problems were confused with psychiatry in general and the whole discipline became suspect. Some of the more zealous of the critics saw grave error and sin, even in psychiatric consultation, to the distress of patient, referring physician, and psychiatrist alike. Psychiatrists knew they were anxious only to practice a medical discipline and they had no desire at all to dabble in either philosophic or theological areas or to interfere with their patients' beliefs. Patients on their part knew that they were ill and more often than not, they were being helped. Their attitude towards the psychiatrist was like that of the man in the scripture who, upon being questioned, replied: "If he be a sinner I know not but this I know, I was blind and now I see."

This was the state of affairs until recently. Here was psychiatry, a medical specialty responsible not only for half of the country's hospitalized patients but for the neurotics of all kinds and description whose number is legion, and yet in some areas it was under suspicion. The specialty and its practitioners must of course share much of the blame for they, too, have a number of zealots whose pronouncements cannot bear too close inspection and whose truculence is in inverse proportion to their knowledge. Fortunately, at present the way toward understanding and rapprochement seems clear and the situation has been helped immeasurably by two allocutions by Pope Pius XII, delivered within a period of seven months and indicative of an intense interest and a broad understanding of the problem.

The discourse of September 13, 1952, outlined the moral limits of research and treatment. It set forth briefly the essential principles and left the application in specific cases to the doctor. "Because only the doctor understands the medical evidence thoroughly, both in itself and in its effects, and because without expert knowledge of the medical facts it is impossible to determine what moral principle applies to the treatment under discussion. The doctor therefore looks at the medical aspects of the case, the moralist the laws of morality." In this allocution the morality, the efficacy, and the correctness of the pan-sexual method of a certain school of analysis are denied. Most psychiatrists would have no trouble in agreeing with this pronouncement and this extreme school has had few adherents in late years.

In the discourse of April 15, 1953, addressed to delegates of the Fifth Congress of Psychotherapy and Clinical Psychology, the hearers were cautioned not to lose sight of the truths established by reason and faith nor of the obligatory precepts of ethics. This allocution spells carefully and in detail the safeguards necessary for the protection of the patient and for the ethical and moral practice of psychotherapy. In no place are psychiatry or psychoanalysis, as medical dis-

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INDICATIONS AND PRECAUTIONS IN CHOLECYSTECTOMY

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I WISH to preface my remarks on indications and precautions in gallbladder disease with a statement on pathogenesis, because of its influence on therapy. During the past several years, I have come to believe firmly that the initial phase of development of cholecystitis is chemical in origin. Later on it appears that infection develops in the gallbladder, but by no means in all cases. Numerous authors have reported the low incidence of positive cultures in acute and chronic cholecystitis. Recently, Twiss and associates[7] have reported studies on 259 patients with chronic cholecystitis, coming to operation. They found a positive culture in the bile in only 28 per cent of cases. The predominant organisms were E. coli, salmonella, typhosus, non-hemolytic streptococcus, alpha hemolytic streptococcus, staphylococcus and proteus vulgaris.

The presence or absence of infection in the gallbladder wall determines to a certain extent the reaction which might develop following emergency operation in the presence of an acute inflammation. If the acute cholecystitis is due primarily to a chemical inflammation the infectious phase of postoperative convalescence is apt to be minimal. On the contrary, if infection is the predominant source of inflammation the operative manipulation in that area may give rise to considerable systemic reaction.

Precautions in Diagnosis.—One of the major precautions in gallbladder disease is obviously related to accuracy of diagnosis. We must always remember that the typical pain in gallbladder disease is located in the right upper quadrant, referred often to the scapula, but not of constant duration. Dyspepsia is often present, but since it is likewise present in innumerable other diseases it becomes of no significance in the diagnosis of gallbladder disease. Gallbladder attacks are so brief in duration that if pain is complained of day after day, the diagnosis of cholecystitis can be eliminated unless a hydrops or empyema is the explanation. As stated above, the attacks of gallbladder disease are usually of short duration. In a detailed study, made by Harridge and Helsby,[8] of 211 consecutive patients having cholecystectomy at Illinois Research Hospital, Chicago, during the past three or four years, 41.7 per cent of the patients had pain lasting less than one-half hour; 12.6 per cent of the patients had pain lasting less than fifteen minutes. In about one-half of the patients the pain was constant, whereas in the other half it was of an intermittent or colic type. Harridge and Helsby likewise noted that in 45.6 per cent of their patients the pain was located only in the right upper abdominal quadrant. Pain was located in the epigastrium alone in 27.2 per cent and in the epigastrium as well as upper right abdominal quadrant in 18.9 per cent.

A correct diagnosis is obviously necessary because cholecystectomy even though stones are present in the gallbladder will not relieve symptoms produced by some other disease.

The pain in the left upper quadrant as seen rather commonly in patients with gallbladder disease may be of gallbladder or pancreatic origin. Occasionally, the pain may be anginal, and may actually be relieved by cholecystectomy, as reported previously. In this presentation we will not go into detail of indications for cholecystectomy in the presence of anginal pain. However, I should like to emphasize that if the pain is unusually severe considering electrocardiographic findings and clinical manifestations of heart disease, gallbladder disease may be exerting a role in the anginal pain. Likewise if severe electrocardiographic findings are present with minimal exercise pain, the gallbladder may likewise be increasing the anginal pain. An extremely important precaution is that operation must not be performed in the presence of a recent coronary thrombosis. Fortunately, the cardiologist with his electrocardiogram can usually identify recent thrombosis, and thus prevent this serious error which so often will result in death.

Precautions in the Presence of Jaundice.—I wish to emphasize the great need for establishing whether or not jaundice is obstructive or hepatog-

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Read at the centennial observation of the founding of St. Joseph's Hospital, Saint Paul, Minnesota, May 16, 1953.

enous in type. The surgeon must always bear in mind that the most common cause of jaundice is medical, namely, virus hepatitis. If the patient has an obstructive jaundice, operation will be strongly indicated, whereas in the presence of hepatogenous jaundice, operation is almost always strongly contraindicated. A common source of error is the failure of the clinician to appreciate the fact that stools may be acholic in the first two or three weeks of disease in virus hepatitis. The fact that patients with virus hepatitis complain of little or no pain, but extreme weakness, should be very important in preventing errors in diagnosis. With few exceptions, liver function tests are extremely helpful in this differentiation, and, in fact, will rarely fail the clinician. The author favors the thymol turbidity test as probably being the most valuable in differentiation, since it is practically always positive in patients with virus hepatitis if the disease is sufficiently serious as to produce jaundice. However, at least two more tests, such as the alkaline phosphatase and cephalin flocculation test, should be performed, since no one test is sufficiently accurate to be considered accurate.

Value of Cholecystography in Diagnosis.—A few axiomatic statements can be made regarding the use of cholecystography in diagnosis of gallbladder disease. In the first place, if no shadow of the gallbladder is obtained following use of the gallbladder test media, we can rest assured that the gallbladder is pathological with no exceptions, providing the patient received the test material, did not vomit it and did not have a severe diarrhea. The latter two complications are now completely obliterated. I wish to emphasize the importance of the first complication, namely, failure to get the dye, because only a short time ago, we were about to remove the gallbladder in a patient reported as having no shadow following cholecystography, but additional investigation revealed the fact that the patient did not get the dye, although he had the routine cholecystographic x-rays.

The most common error in cholecystography is found in the patient having a shadow (presumably normal) of the gallbladder but actually having a diseased gallbladder. Many of these patients will even have stones in the presence of a normally concentrating gallbladder. If the stones are small, and only one x-ray picture of the gallbladder is available, they may not be visible. Radiologists have now learned that having the patient stand while taking the x-ray picture may allow small stones to gravitate and thus be seen. On certain occasions, stones can be visualized only when

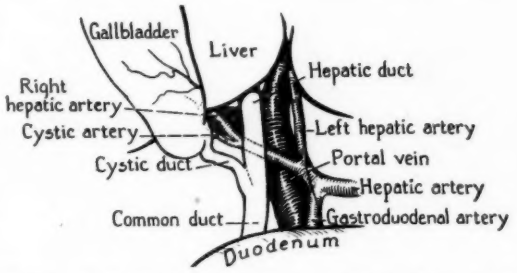

Fig. 1. Composite of the anatomical condition most commonly found in the biliary tract of the human being. Anomalies are probably more common in this area than in any other part of the body.

two or three pictures are available with decreasing density of the shadow, thus allowing better contrast with the stones. The medias recently introduced for use in cholecystograms are very effective in production of a shadow in normal gallbladders with a small dose, and with practically no reaction. However, there is a possibility that these substances are concentrated so much in the gallbladder that many pathologic gallbladders may actually reveal a fairly good shadow. If this is true, roentgenologists will have to go back to the old custom of interpreting density of shadows, which obviously would be associated with considerable possibility of error.

The great advantage of the media (Telepaque) most recently introduced is that it is concentrated so much in the gallbladder that when it is discharged by the gallbladder into the common duct the latter structure can often be visualized fairly clearly. On rare occasions, stones in the common duct will be demonstrable during the cholecystographic examination.

Historical Data

Since this is an historical meeting, being the Centennial Observation of St. Joseph's Hospital, it might be of interest to relate some of the historical features in the development of cholecystography. It is now just thirty years ago that Dr. Graham and I[4] began work on cholecystography in St. Louis. We first investigated tetraiodophenolphtalein, but the sample of the chemical which we had, turned out to be fairly toxic and we shifted our activities to the bromine compound, namely, tetrabromphenolphthalein. We first used

the sodium salt of tetrabromphenolphthalein, but later adopted the calcium salt because the ion calcium is heavier than sodium and known to be impervious to the x-ray. We had Mallinckrodt

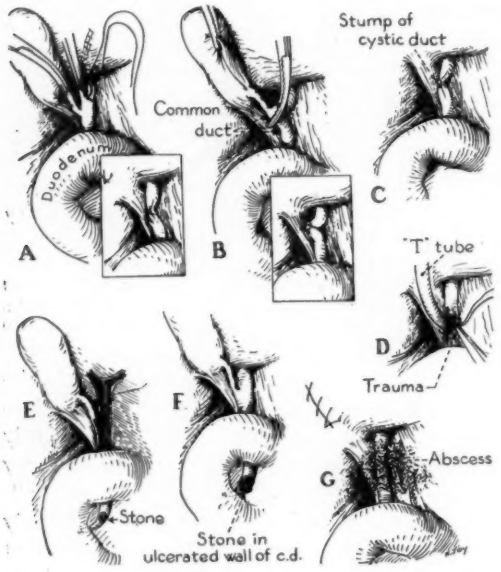

Fig. 2. Mechanisms in production of stricture of the common duct; (A) transfixion with a needle; (B) ligation with the cystic duct; (C) ligation of the cystic duct too close to the common; (D) diffuse sclerosing pancreatitis; (E) cholangitis; (F) ulceration of the wall by stone; (G) abscess or local collection of bile. (From Cole, Ireneus and Reynolds *in* Strictures of the Common duct, Advances in Surgery. New York: Interscience Publishing Co.)

Chemical Company prepare some tetraiodophenolphthalein, which upon trial revealed no greater toxicity than tetrabromphenolphthalein, but superior shadows. Accordingly, we then began to use it intravenously and orally. We tried out twenty-five or more compounds in our efforts to find the one most effective in producing a shadow. Seven or eight of these compounds produced satisfactory shadows of the gallbladder, but a few of them were moderately toxic. One of the less toxic compounds and one which we used for two or three years was phenoltetraiodophthalein.[5] We used this for a few years because it is a fairly stable dye, and also could be used as a test of liver function since the drug was excreted largely by the liver. Simultaneous readings on liver function could be obtained following the intravenous injection of this dye for cholecystography. It was following the use of the simultaneous test of liver function that we found an extremely high mortality rate in patients having cholecystectomy when a retention of dye beyond normal was found. For example, in a certain period of observation we found that all of our deaths following cholecystectomy occurred in patients having a retention of dye greater than 40 per cent (normal 5 to 10 per cent). Early in our experiments we likewise learned that the strontium salt of tetraiodophenolphthalein was effective in obtaining cholecystograms in animals. Strontium has a much higher atomic weight than does calcium or sodium, but we learned later that the positive ion in this compound was not the ion most responsible for the shadow, therefore the use of strontium was abandoned.

It might be of historic interest to quote from our original manuscript on the exact method used in preparing material for injection into a patient.

"A dose of 0.1 gm. per kilogram, when injected into a human subject, was found sufficient to cast a shadow. At present, 6 gm. has been the largest dose used. Six grams of tetrabromphenolphthalein is mixed with 1.2 gm. of calcium hydroxid, ground in a mortar with a few cubic centimeters of water, and dissolved in from 325 to 350 cc. of distilled water. Addition of calcium lactate was found to produce a more stable solution and slightly increase its solubility. Therefore, a solution of 2 gm. of calcium lactate in a few cubic centimeters of water is added. The solution has been sterilized by heating it to the boiling point under a flame, and heating in a water bath at from 95 to 100 C. for fifteen minutes."

The above quotation indicates the starting point in cholecystography. The person giving the dye made up the solution just as stated above.

Indications for Operation in Gallbladder Disease

Acute Cholecystitis.—There is still controversy as to whether acute cholecystitis should be treated by emergency operation or should be treated conservatively, waiting for the acute inflammation to subside. It is probable that the majority of surgeons favor immediate operation, but many excellent surgeons still choose to treat the condition conservatively. I, personally, am of the opinion that if the patient is seen within forty-eight hours of onset of symptoms of an acute attack, emergency operation should be performed. I, personally, prefer to treat patients who have symptoms longer than forty-eight hours, on a conservative basis, because the inflammation is apt to be so far advanced that cholecystectomy may be quite dangerous, and associated with a high mortality

rate. One of the most significant drawbacks in the adoption of the policy of emergency operation is the fact that errors in diagnosis will be extremely common, and many cholecystectomies will be performed for manifestations produced by some other lesion.

If the conservative method of treatment is adopted it is extremely essential that the patient be watched very closely for the development of manifestations which may be a signal for impending gangrene or perforation. The important signs of impending gangrene or perforation are: (a) increase or persistence of pain; (b) increase or persistence of muscle spasm; (c) increase or persistence of fever, and (d) increase in leukocytosis. Of the four manifestations mentioned above, the first three are obviously the more important. If any of these three manifestations persist or increase, one should be suspicious of impending gangrene or perforation. If all three are present then perforation is so likely that emergency operation should be performed.

Utilizing these precautions, I have never seen a perforation of the gallbladder into the free peritoneal cavity. However, when the conservative method has been followed, I have operated on many patients as emergencies because some of the signs mentioned above developed or persisted. All clinicians have encountered on numerous occasions perforation of the gallbladder with local abscess formation. Often these patients reveal very few local signs.

When operation is performed for acute cholecystitis there will often be difficulty in determining whether cholecystectomy or cholecystostomy should be carried out. In general, attempt should be made to do a cholecystectomy, if inflammation is relatively mild, and the gallbladder can be removed without endangering structures around the common duct and major vessels. Therefore, the condition of the patient at the time of operation is an important factor and must be utilized in the discussion as to which of the two operative procedures shall be adopted. Often aspiration of the contents of the gallbladder will be helpful in determining which procedure shall be utilized. For example, if the contents of the gallbladder are shown, under microscopic examination, to be teeming with bacteria, and the patient exhibits considerable toxicity from the infection, then cholecystectomy may be inadvisable. However, as intimated earlier in this presentation, the causative factor in development of cholecystitis, even acute cholecystitis is often chemical rather than bacterial. If the contents of the gallbladder reveal pus cells but no bacteria, then cholecystostomy is permissible unless the patient's condition is quite

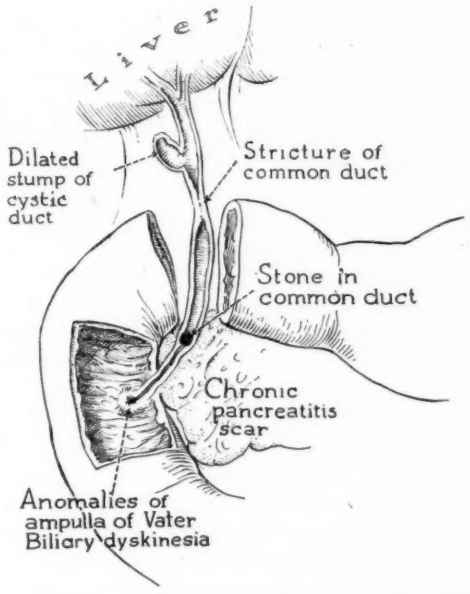

Fig. 3. Diagrammatic sketch revealing possible causes of persistent symptoms following cholecystectomy; the lesions illustrated include only those located in the biliary system or in areas related to it. (After Cole in J.A.M.A., 1952).

critical. Elderly people with complicating diseases do not tolerate major operations very well; in such patients it is often advisable to do cholecystostomy rather than cholecystectomy.

Chronic Cholecystitis.—To a considerable extent indications for operation for chronic cholecystitis depend on the symptoms and their degree. It is always important to ask the patient if the symptoms are severe enough that he would wish to have an operation to eliminate them. However, this is by no means the only, or more important, factor in advising operation, because most clinicians now adopt the philosophy that a diseased gallbladder, particularly if containing stones, should be removed if many years of life are expected. I have adopted the principle of advising operation in patients with no symptoms but proven diseased gallbladder if the patient is under fifty or fifty-five years of age, and normal life expectancy exists. Obviously, we would not advise cholecystectomy in a patient with asymptomatic stones if he has

a vicious hypertension with kidney disease, et cetera. Moreover, we do not often advise operation in the presence of asymptomatic gallstones in patients sixty-five or over, on the assumption that they will probably succumb to a natural death before complications of the gallbladder disease develop. However, one important point is almost axiomatic, namely, that if an elderly patient is having symptoms there are stronger indications for removal of his gallbladder at an early date, than in a younger person. The explanation of this statement lies in the fact that elderly people will tolerate cholecystectomy about as well as younger individuals, providing they do not have complicating disease, and providing complications of the gallbladder disease are not present. For example, in a survey[1] of mortality rate of 2,500 patients recently made at the Illinois Research Hospital, we found that the mortality rate in 169 patients under the age sixty having cholecystectomy was zero, and the mortality rate in fifty-four patients over sixty years of age was 1.6 per cent. This statistically is insignificant because there is only one death in the latter series. However, the mortality rate of all patients having cholecystectomy, choledochostomy or choledochoplasty does reveal a sharp difference in the mortality rate in the younger group as compared to that in the older group. The mortality rate for all patients having one or more of these three operations was 0.39 per cent in patients under sixty, compared to 3.9 in patients over sixty years of age. Therefore, it appears quite definite from our studies that the elderly patient can tolerate an operation like cholecystectomy about as well as younger people providing no complication exists.

Precautions in Operation for Diseases of the Biliary Tract

Cholesystectomy can be a very easy operation to perform, but when it is difficult, there is scarcely another operation in the field of general surgery which is as difficult or fraught with as much danger. The ill effect of errors in operative technique are so significant, particularly from the standpoint of danger of development of stricture of the common duct that numerous precautions must be emphasized.

1. *Good exposure* is essential to prevent damage to structures around the common duct and major vessels. Many surgeons prefer an oblique transverse incision for cholecystectomy or choledochostomy. I favor the use of the transverse incision wherever possible, but after using it in several patients for operation on the biliary tract, I have had the uncomfortable feeling that my exposure was inadequate. Accordingly, I, personally, prefer the paramedian incision and make it *long enough* to allow good exposure.

2. The surgeon must *be aware of congenital malformations.* (a) An accessory hepatic duct occurs in about 15 per cent of patients. The surgeon must watch for this accessory duct, and be sure it is ligated because in the absence of ligation considerable bile may pool in the abdomen giving rise to bile peritonitis, or if located only over the common duct may give rise to stricture. (b) An accessory cystic artery is found in 15 per cent of patients. If the surgeon is not aware of this after ligation of one cystic artery, he may hurry along and cut the second with so much resulting hemorrhage that the field is obscured before he has opportunity to control the bleeding. (c) The right hepatic artery lies anterior to the common duct in about 12 per cent of patients. If the surgeon is not aware of this, and cuts boldly through the posterior peritoneum and attempts to open the common duct, he may sever the right hepatic artery. If the right hepatic artery should be severed it should be anastomosed immediately. If not anastomosed successfully a great many of these patients, perhaps half, will die. (d) The right hepatic artery protrudes upward toward the liver parallel to the cystic duct in about 25 per cent of patients. This is a particularly significant hazard, as emphasized by my own experience, since on numerous occasions I have been about to place a clamp on the right hepatic artery, thinking it was the cystic artery. Delay at this point, and positive identification of the structures will save the surgeon much trouble.

3. The surgeon *must not be in a hurry* while dissecting the bile ducts. Damage to structures in this area are much more likely to occur when a surgeon is careless or is hurrying in his dissection.

4. The *junction of the cystic duct with the common should be isolated* before ligating the cystic duct. The reason for this precaution is obvious since the cystic duct can thus be ligated without jeopardizing the common duct.

5. The *cystic duct and artery should be ligated*

separately. If the cystic duct and artery are ligated together there is more danger of damaging the common duct, and of having the ligature slip off perhaps a few hours after operation. Moreover, the mass of ligated tissues with resultant necrosis is much smaller if the two structures are ligated separately.

6. The surgeon should *cut no structure until it is identified.* The importance of this precaution is readily understandable because the common duct and right hepatic artery may easily be damaged if proper identification is not made.

7. The surgeon should *ligate no artery until proven it enters the gallbladder.* Failure properly to identify arteries may allow ligation of or damage to the right hepatic artery.

8. It is usually desirable to *start dissection at the fundus of the gallbladder when adhesions are dense.* This precaution will prevent damage to structures in the floor of the operating field. When adhesions are dense, sharp dissection is almost imperative and therefore very dangerous. If the gallbladder is opened and dissection started at the fundus, the surgeon can keep his dissection confined to the gallbladder area, particularly if he has his finger in the lumen. It can usually be amputated flush with the cystic duct without endangering the vital structures in that area.

9. *Arterial hemorrhage should be controlled by pressure* on the right hepatic artery with a finger in the foramen of Winslow. When brisk hemorrhage develops it is very dangerous to attempt to clamp the bleeding point blindly through a pool of blood. With the right hepatic artery controlled by the right index finger and thumb, the field may be sponged dry of blood and the bleeding point found with gentle release of the artery. This precaution is important because a severed cystic artery retracts underneath the common duct at which point it usually arises from the right hepatic artery.

10. Always *remember that 75 per cent of strictures of the common duct are due to trauma inflicted during cholecystectomy.* It is very significant that very few strictures of the common duct are encountered in patients having had choledochostomy or cholecystostomy. This implies that in cholecystostomy the surgeon is not working deep enough to damage the common duct, and in choledochostomy, has isolated the common duct so that it cannot be damaged other than by the deliberate incision at the time for exploration.

Results

At the present time the mortality rate for cholecystectomy is probably less than 1 per cent. If figures are extended back ten or fifteen years, the rate will probably be in the neighborhood of 2 per cent. For choledochostomy plus cholecystectomy the rate now should be about 1.5 per cent and for studies extending back ten or fifteen years 3 to 3.5 per cent. In a study of causes of death following operations on the biliary tract at their hospital, Glenn and Hays[3] found that there was a decline in the number of deaths from hemorrhage and shock and intra-abdominal infections during the period between 1932 to 1950, but that there was a rise in deaths from degenerative diseases. Of the entire series, 30 per cent of the deaths were due to hepatic infection, cirrhosis or necrosis; the incidence of these complications remained fairly constant during the years through which the study was made. The overall mortality rate in their series was 1.8 per cent. In a four or five-year survey of surgical results recently made by the author[1] at Illinois Research Hospital the mortality rate for all types of operations on the biliary tract was 1.2 per cent (four deaths in 330 cases). As stated previously, in this study we had no deaths in 169 cholecystectomies performed in patients under sixty years of age and one death in fifty-four cholecystectomies performed in patients past the age of sixty, constituting a mortality rate of 0.45 per cent for cholecystectomies. Figures on symptomatic results following operation are related directly to the correctness of diagnosis, and inversely to the incidence of technical errors committed during the operative procedure. For patients having severe and typical pain in the right upper quadrant, good symptomatic results should be obtained in about 95 per cent of cases. For patients having mild symptoms including primarily dyspepsia, the percentage of good results will be no greater than 60 to 65 per cent. As stated, most of the persistent symptoms are related to erroneous diagnosis but in many instances the pain may truly have been of biliary tract origin, but the wrong or inadequate technical procedure was carried out. Residual stones constitute perhaps the most common single cause of persistent symptoms related to the biliary tract. Other causes of persistent symptoms including biliary dyskinesia,

(Continued on Page 723)

HUMORAL VS. NEURAL REGULATION OF THE EXTRA-HEPATIC BILIARY TRACT

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IT IS indeed a privilege to participate in this hundredth anniversary of the founding of St. Joseph's Hospital and to commemorate the first successful cholecystectomy in the Western Hemisphere—the one performed in St. Joseph's Hospital in 1886 by the late Dr. Justus Ohage.

While it is somewhat presumptuous to attempt to cover thirty years work in twenty minutes, I shall try to present the more important steps leading to our present conception of the mechanism of evacuation of the gallbladder.

Modern studies may be said to have begun in 1921 with the demonstration by Rous and McMaster[31] that the gallbladder of the dog concentrates the incoming hepatic bile from seven to ten times. Previous to this, Doyon[17,18] had postulated the simultaneous contraction of the gallbladder and relaxation of the sphincter of Oddi, Meltzer[28] had attributed diseases of the biliary tract to disturbances in the law of contrary innervation of these two end organs and Lyon[26] had developed a method of "non-surgical drainage" of the gallbladder by which a moderate discharge of "B-bile" could be induced by injecting a solution of magnesium sulphate into the duodenum. However, it was the precise study of Rous and McMaster that focussed attention on the physiological importance of the gallbladder.

Two years later, this writer[4,5] was able to show that in cats the gallbladder could be completely emptied by a meal of egg yolk and cream, of which egg yolk was found to be the most effective component. The next year (1924), Graham and Cole[19] published a method of visualizing the human gallbladder that revolutionized the diagnosis of cholecystic disease and opened the way for direct experimentation with the human gallbladder. In the fall of the same year a group of workers at the Peter Bent Brigham Hospital in Boston—unaware of the earlier work on the cat—first observed changes in the gallbladder shadow "after a meal." The cholecystograms were made by Milliken and Whitaker[29] on Whitaker's gallbladder. Subsequently, this work was expanded,[34] but previous to that the writer requested permission of the group to try the effect of egg yolk on his own gallbladder. This was done[5] (p. 334) and Whitaker also published this cholecystogram[36] confirming the observation that egg yolk is the most effective food.

Shortly afterwards, by applying an engineering method to the computation of gallbladder shadows in serial cholecystograms, Boyden was able to measure the rate of evacuation of the human gallbladder after a standard meal,[6,7] to determine its normal phases of contraction in different age groups[13,14] and its behavior under various test conditions[7]—thus paving the way for subsequent analysis of its rate of evacuation in pregnancy,[20] in peptic ulcer patients[11] and those suffering from pernicious anemia.[15]

Meanwhile, in 1926, three groups of investigators,[6,21,27,37] each unaware of the other's work and employing different experimental methods, had demonstrated that active contraction of the gallbladder is the force which expels gallbladder bile. At the same time Boyden[6] had shown that the gallbladder of a fasting animal could be activated by injecting into its leg vein 10 cc. of arterial blood from a cat which was digesting egg yolk, and that marked contractions could be induced even by transferring blood from a fasting animal to a test cat, or by autotransfusion. Two years later, Ivy and Oldberg[22] discovered that an extract of the duodenal mucosa (cholecystokinin) could evacuate the gallbladder of a dog when injected intravenously.

The question then arose as to whether the evacuation of the gallbladder is regulated solely by hormones or partly by these and the autonomic nervous system. Employing the Whitaker method[37] of filling the gallbladder of an experimental animal with lipiodol, Birch and Boyden[3] sewed shielded electrodes onto the gut tract of cats and found (in animals which had recovered and lay purring on the x-ray table) that the

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emptying of the gallbladder could be reflexly inhibited by faradic stimulation of any part of the gut from stomach to cecum. However, this merely demonstrated the action of the nervous system in a laboratory mammal. Accordingly, in 1934, Boyden and Rigler[16] performed comparable experiments on volunteer medical students. When a faradic current was applied to the stomach or duodenum by means of swallowed electrodes, the resulting spasm and colicky pain completely failed to interrupt evacuation of the human gallbladder as it was being recorded at 10-second intervals on the x-ray table. These experiments seemed to point to the fact that the human gallbladder is not subject to reflexes originating in the gut tract.

Subsequently, our attention was focused on the sphincter of Oddi by anatomical studies[8,9,25,32] which proved for the first time that the human choledochal sphincter develops independently of the duodenal musculature,[32] and by physiological studies on T-tube patients (Bergh and Layne)[2] which proved that the sphincter can act independently of the duodenal musculature and even be the seat of spasms producing biliary colic. However, as a preliminary step, it was again necessary to analyze the innervation of the sphincter in animals. In 1943 Schulze and Boyden[33] discovered in cats the presence of a gastroduodenal nerve that innervates the choledochoduodenal junction. The cutting of this nerve in experimental animals (Johnson and Boyden)[23] retarded evacuation of bile. Section of the right vagus, which supplies a large component to this nerve as well as to the gallbladder, produced the greatest retardation, and section of the splanchnic nerves eliminated reflex inhibition of the gallbladder.[23]

There the matter rested until Johnson[24] was able to take advantage of a series of double vagotomies being carried out on male patients in the Veterans' Hospital for treatment of peptic ulcer. Series of cholecystograms were made preoperatively and at intervals of several months, postoperatively. The efficacy of the operation was tested by the Hollander gastric insulin test which is mediated by the vagus nerves. Also due consideration was given to the fact that in ulcer patients the gallbladder is evacuated much faster than in normal individuals[11]—a circumstance shown by Rigler and Boyden[30] to be due to the faster passage of egg yolk from stomach to duodenum, as revealed by fluoroscopic comparison of seventeen ulcer patients and an equal number of controls.

In the five ulcer patients in which double vagotomy was successful, the rate of evacuation of the gallbladder, as revealed by serial cholecystograms, merely returned to the rate characteristic of normal individuals.[24] In other words, double vagotomy had merely cured the ulcer condition since gallbladder and sphincter reacted normally after section of both vagi. It was noted, however, that the fasting volume of the gallbladder in these patients virtually doubled in the course of a year. This was interpreted to mean that loss of the vagi had affected the tonus of the fasting gallbladder, so that it failed to maintain its tonus against the influx of hepatic bile. It is too early to determine whether this has clinical significance.

Assuming, therefore, that the autonomic nervous system plays little if any role in evacuating the gallbladder, one may then ask what the factors are that regulate the flow of bile into the duodenum.

In healthy individuals, such evacuation would seem to be under the primary control of hormones originating in response to the presence of activating substances in the upper intestine. These vary quantitatively in their effects. Certain foods are more effective than others.[5,7] Moreover, evacuation is speeded up if these substances are introduced directly into the duodenum.[12] In addition, certain hydragogue cathartics (differing again in intensity of their effect)[12] mimic the first phase of contraction induced by food. Thus Boyden, Bergh and Layne[10] have shown that magnesium sulphate causes progressive relaxation of the sphincter for an average period of seventeen minutes and a drop in intraductal pressure from 14 to 11 cc. of water. The same salt induces a phase of contraction of the gallbladder that lasts for an average of thirty minutes and decreases the volume of the gallbladder by an average of 43 per cent. Similarly egg yolk causes progressive relaxation of the sphincter for an average period of seventeen minutes but a drop in intraductal pressure from 14 to 7 cc. of water. The same food induces a phase of contraction of the gallbladder which lasts for an average of thirty minutes but decreases the volume of the gallbladder by an average of 71 per cent.

These experiments indicate that the hormone produced by these substances acts simultaneously on the smooth muscle (or intrinsic nerve nets) of

both the sphincter and the gallbladder. As McMaster and Elman noted in their experiments with dogs,[27] "There would appear to be a reciprocal response on the part of the two structures to the one stimulus." Additional evidence for this was found in our experience with seven pernicious anemia patients.[15] After the standard meal the gallbladder shadows diminished at the normal rate but the discharged bile filled the hepatic ducts first instead of passing into the duodenum. The administration of antispasmotics did not alter the situation; from which it was assumed that the biliary outlet was narrowed or fibrosed. Nevertheless, the gallbladder contracted normally. Similarly, in the T-tube patients of Bergh[1,2] the sphincter reacted normally in the absence of the gallbladder.

Finally, the retarded emptying of the female gallbladder in pregnancy[20] and the marked reversal of rate of the male gallbladder, postpubertally,[13] suggest that hormones other than those originating in the intestine may, at times, be operative.

In the diseased tract, other factors intervene. The presence of common duct stones, toxic substances, local tumors and inflammation can give rise to an "irritable sphincter." Significantly enough, this condition can often be relieved, temporarily, by antispasmotics but not by neuromimetic drugs—as has been so well shown by Bergh.[1] Has the time not come, therefore, to give up the concept of a biliary dyskinesia that is attributable to autonomic imbalance? This postulate[35] was based originally upon experiments with laboratory animals, in which species, admittedly, nerves have a regulatory effect on the contraction of both gallbladder and sphincter. In the human being, however, the absence of reflex inhibition[16] and the negative effect of sectioning the vagus nerves[24] would seem to favor the view that autonomic interference has virtually disappeared, thereby leaving the control of evacuation of the biliary tract to humoral substances.

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PSYCHIATRY AND RELIGION

(Continued from Page 713)

ciplines, condemned as long as they do not contravene the moral and ethical principles mentioned.

The close of the discourse is of such importance that I am moved to quote it. "This is what we feel obliged to say to you. In addition be assured that the church follows your research and your medical practice with her warm interest and her best wishes. You labor on a terrain that is very difficult. But your activity is capable of achieving precious results for medicine from the knowledge of the soul in general, for the religious dispositions of man and for their development. May providence and divine grace enlighten your path."

Thus, armed on the one side with this blessing, which should go far toward allaying some suspicion, and on the other side the mellowing of various psychiatric doctrines and a closer relationship to medicine, there is hope that we might realize at least some of the precious results mentioned.

It is probable that the guests at the next centennial celebration here will not even have heard of these disagreements. People will go on with their religion; medicine will go on with its duty of healing and an important part of this healing will be in the emotional spheres, for it is as Paracelsus observed in the fifteenth century: "He who wants to know man must look upon him as a whole, not as a patched up piece of work."

CHOLECYSTECTOMY

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dilated stump of cystic duct, neuromata, et cetera, have been discussed elsewhere by the author.[2] Fortunately, most of these patients having persistent symptoms of biliary tract origin, following cholecystectomy, can be relieved if the proper operative procedure is performed.

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WOMEN IN MEDICINE

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ON THE SUBJECT of women in medicine, men find it difficult to mind their own business. Men started the first medical school for women in the United States, and here at this late date they again are agitating for women physicians These remarks appear facetious; yet they reveal a sincere desire to help women gain a full opportunity in all fields of medicine.

Medical education for women, in 1850, presented a challenging situation when William J. Mullen and three other men founded the institution now known as the Woman's Medical College of Pennsylvania. In that day, medical opportunities were beyond the scope of women. The background of the infant college was the neighborhood of tidy colonial architecture, floating ostrich plumes, and long voluminous skirts. The panorama inspired dignity and gentility—life for the ladies was languorous. No awful spectacle of a woman physician dashing out in high gear to answer a maternity call could be envisaged. The inspired Mullen commented realistically, "A woman, having received from her Creator the same intellectual constitution as a man, has the right to intellectual culture and development . . . and if women were properly educated, some new avenues to useful and honorable employment, in harmony with the gentleness and modesty of her sex, might be opened to her."

Today, the mode of life is changed; likewise the prerogatives of women. Those who are qualified may study and practice medicine without apology. They no longer reflect the harsh experiences of Mary Walker, who found it necessary, as Dr. Gulielma Alsop records, to wear man's attire to obtain adequate standing in the profession.

Since 1900, medical science has contributed richly to the betterment of human health through the control of communicable diseases, the elucidation of industrial hazards, the applications of chemotherapy, and rehabilitation. Implementing medical progress are numerous agencies that have mustered up forces to extend the arm of science. Increasing longevity has resulted. As Sir Arthur Newsholm remarks, "This is a response to the humanitarian sentiment against suffering."

With the increasing desire for better health, no thoughtful observer avoids the conclusion that new implementation of public health measures is essential. It is no longer sufficient for the doctor to be the healer of the sick—contrarily it is expected that he become the protector of the well individual and the community. Waste of lives is disastrous. As Dr. René Sand points out, "Governments are led to economize and cultivate this human capital." And better control of disease goes hand in hand with the promotion of national strength, a feature epitomized by Dr. Thomas Parran in the slogan of World War II: "Let's make our men as fit as our machines."

Statistical data indicate the population trends of the United States and emphasize the need for more physicians, especially women, for general practice and the specialties. The significant aspect is the disproportion between the increased birth rate, the wider participation of women in all fields of endeavor, and the number of physicians provided for their care. As for example, the national population rose from 131,669,000 in 1940 to 151,500,000 in 1950; the number of men in industry increased from 39,944,000 in 1940 to 43,268,000 in 1950, while the number of women rose from 12,845,000 in 1940 to 16,323,000 in 1950. The number of physicians in 1940 was 165,000, of whom 157,400 were men and 7,600 women. Between 1940 and 1952, 76,717 were graduated of whom 71,909 were men and 4,808 women. These figures do not reveal the number of physicians who discontinued practice or entered the armed forces, the veterans administration and government fields. It is apparent that the number for replacement and direct service to the public is relatively inadequate. A serious shortage has appeared in hospitals, both new and old. For example, in four hospitals of Luzerne County, Pennsylvania, there are only three interns; and throughout the United States at least 3,000 unfilled internships exist at the present time. More doctors must be found for all purposes.

The woman physician, by nature a home maker, fits precisely into the changing role of medical needs. Dr. Alice M. Pickett writes, "For gen-

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erations, she has dealt with the tender things of life, the helpless, ill and handicapped . . . and her sympathetic understanding, acquired through the years, has been valuable in the fields of pediatrics, obstetrics, gynecology, general practice, teaching, and administration." Apart from her skills, there are the natural qualities of a common sense manner of dealing with the patient, hospital and home. She recognizes the futility of good health without cultivating the human aspects—the behavior, personality and adjustment of the individual to his community. As scores of patients will testify, women physicians, surcharged with the miseries of disease, are ever ready to speak to the sufferer of a way to peace and comfort. I cannot relate a single instance where the ceaseless panorama of suffering has dulled their finer edge of sympathy, or where womanly traits have become lost under the pressures of scientific doctrine. Though differing from men, as God intended, women are essentially equal to men in the practice of medicine. To their virtues I am dropping manna in abundance. To their faults—well, I'm a bit blind—and besides there is neither time nor place to search out man's tribulations.

The medical contributions of women in medicine have long been recognized and fully recorded. History unfolds the pioneer accomplishments of Elizabeth and Emily Blackwell, Ann Preston and Marie Zakrzewska, and the present-day services of Drs. Catharine Macfarlane, Ellen Potter, Florence Sabin, Helen Taussig, and Martha Eliot, to mention only a few. Their quest for basic knowledge and their desire to serve medicine wholeheartedly has attracted interest and glorified the entire medical profession.

The real problem of the woman physician is her unwillingness to limit her life to practice and the financial obligations to her family. No, she assumes the heavy responsibilities of wife, mother and citizen. And in so doing, as Dr. Alice M. Pickett remarks, "She elaborates woman's basic difficulty in becoming unduly burdened." Group practice, with the opportunities for part-time participation may change the pictures of women in medicine. As Helen Leopold, writing for the *Louisville Times, remarks,* "Group practice should give time for living;" and as it helps to emancipate doctors from the bondage of their profession, women may gain the opportunity to combine marriage and a medical career, or to follow their profession with unbridled freedom. It appears the success of her medical program will depend on the ability of the woman physician to prorate her time for the varied activities of home, office and hospital.

The medical needs of the people are apparent, and the education of more doctors is necessary, but the problem is complex. It has been suggested that a greater number of students could be trained if the medical schools merely increased their enrollment and utilized for the purpose existing facilities and personnel. Fortunately, or unfortunately, as it may appear to those beyond the walls of medical colleges, the human equation takes precedence over bricks and mortar. Indeed, academic expansion *per se* cannot be upheld by the techniques of the assembly line or the contrivances that cause jet bombers to travel 700 miles an hour. Competent teachers must be trained, sought out and engaged.

And, as the teacher plays a vital role in day-to-day instruction, he must also light the way for practice and inspire as well as assist those who would undertake programs of research. Nor does his work end there. Postgraduate education depends on his sustained interest in fundamental investigation and his ability to present pertinent data to the community for practical application. No wonder there is a fantastic situation in medical education that challenges deans, faculties and administrators to the very roots of their experience and ingenuity.

It is encouraging that the interest of prominent industrialists and philanthropists has been aroused in the formation of the National Fund for Medical Education. And no presentation on the needs in medicine should fail to commend Mr. Herbert Hoover, Mr. S. Sloan Colt, Mr. Alfred P. Sloan, Jr., Mr. Bernard Gimbel and the other trustees for their vision and effective leadership. Their support may very materially influence the course of medical education and the physicians who will serve the public.

While contemplating solutions for medical needs, an important asset has been overlooked. Women physicians have not been fully integrated into the field of medical education or service. Perhaps women have accepted the age-old view that men dominate the field of medical education and there is no important opportunity open to them. And perhaps men have considered women physicians as so definitely in the minority that their

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NEWER CONCEPTS ON THE COAGULATION OF THE BLOOD

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IT MAY truly be said that the coagulation of blood is a subject of vital importance. Even at the very beginning of life, the Scylla of hemorrhage may bring disaster, while the Charybdis of thrombosis eventually may wreck often the sturdiest without warning. Yet withal, how little is known of this important physiological process in spite of long and ardent toil.

Historical

Several hundred years elapsed between the time that Malpighi noted white strands remaining after a blood clot had been washed and the recognition that these strands were derived from a soluble plasma protein, fibrinogen. The important concept of Buchanan that a specific agent of the blood was responsible for the conversion of fibrinogen to fibrin did little to stimulate progress until the same idea was reintroduced by the aggressive Alexander Schmidt. To him and others such as Hammarsten belongs the credit for establishing thrombin as the physiological clotting agent. Through the work of Schmidt, Pekelharing and others, it became recognized that thrombin did not exist in the blood but was formed from a mother substance, which is now known as prothrombin. Again it was Schmidt who contributed another important idea, namely, that prothrombin required for its activation an agent that he named zymoplastic substance which in modern terminology is thromboplastin. It remained only for Arthus and Pagès to show that calcium was indispensable for clotting to complete the basic facts which were established when the present century began.

Morawitz and Field and Spiro summarized the existing knowledge on the clotting of blood by the two well-known equations:

Prothrombin + calcium + thrombokinase = thrombin
Fibrinogen + thrombin = fibrin

It is of little moment now what precise interpretations these authors gave to the various clotting factors. Suffice it to say, that their simple equations furnished the most practical guide and served as the basis for methods to determine prothrombin quantitatively.

The writer, in 1935, devised a test now generally known as the one-stage procedure for determining prothrombin. The method consists in adding an excess of potent thromboplastin reagent and calcium chloride to oxalated plasma and then carefully determining the clotting time which becomes a measure of the prothrombin concentration. Almost simultaneously and independently Smith, Warner and Brinkhous also developed a method for estimating prothrombin. In their procedure, the prothrombin is converted to thrombin, and the amount of the latter measured by the speed with which it coagulates a standard solution of fibrinogen.

It was most opportune that vitamin K was discovered at the time when these two methods became available. With the recognition that vitamin K is essential for the synthesis of prothrombin, the cause of several important bleeding diseases, particularly the hemorrhagic disease of the newborn and cholemic bleeding, became apparent and the cure almost immediately forthcoming. In an incredibly short time a significant new chapter in modern medicine was completed.

The discovery that spoiled sweet clover hay caused a hemorrhagic disease by depressing the prothrombin level of the blood initiated a new phase in the study of blood clotting. The isolation of the toxic principle, Dicumarol, from spoiled sweet clover hay by Dr. Link supplied a new tool for studying prothrombin. A detailed account of the early historical developments may be found in the author's monograph on hemorrhagic diseases.[5]

In 1943 it was demonstrated that in addition to the known clotting factors another agent hitherto entirely unrecognized was essential for the production of thrombin.[6] This discovery was the result of a relatively simple experiment. It was known that the prothrombin time became prolonged in stored plasma and it was assumed that this was due to a loss of prothrombin. Signifi-

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cantly, when to such stored plasma an equal volume of plasma from an animal in whom the prothrombin was depressed by Dicumarol was added, the resulting mixture had a relatively normal prothrombin time. The fact that the two plasmas mutually corrected each other clearly indicated that the agent which disappeared on storage was not the same as the one depressed by Dicumarol. Obviously, prothrombin was not destroyed by storage, but rather that a decrease of a new entity was responsible for the prolonged prothrombin time. This new factor was named component A of prothrombin but later renamed labile factor. At the time of its discovery, the prediction was made that a deficiency of this factor might be found clinically. Interestingly, in less than two years, Owren[4] reported such a case. While the discovery of the labile factor has not changed the fundamental concept of the coagulation mechanism, it did emphasize the ease with which an essential clotting factor can long be overlooked.

Another major advance in blood clotting was made in 1947, when it was demonstrated that the activity in blood which was generally named thromboplastin was the resultant of the interaction of a platelet factor and a plasma constituent which was named thromboplastinogen.[7] On the basis of this observation, a new test was developed which is known as the prothrombin consumption time. In this procedure blood is clotted under standardized conditions and the prothrombin remaining in the serum is determined. From this residual prothrombin, the amount of available thromboplastin in the blood can be estimated. A deficiency of either platelets or thromboplastinogen as occurs in hemophilia results in a deficiency of thromboplastin and, therefore, in a poor consumption of prothrombin. With this new test a means is now available to study quantitatively the group of diseases which can be classified under the heading of hypothromboplastinemias.

The Essential Thrombinogen Factors

Since thrombin is the keystone in the coagulation mechanism, it is imperative to know what agents are required for its formation. Experimentally and clinically, it is now well established that at least five agents are essential: prothrombin, labile factor, calcium, platelets, and thromboplastinogen. It is not unlikely that other factors will eventually be found to be required, but so far only the five named are sufficiently established to designate them as primary.

Prothrombin.—This clotting factor is accorded a position of pre-eminence in blood clotting, not because it is more important than the other basic agents, but because more is known about it. It is a plasma protein which is inactivated at about 58° C. It requires for its synthesis vitamin K. One may postulate that the enzyme responsible for the synthesis of prothrombin is composed of an apoenzyme (Æ) and a prosthetic group supplied by vitamin K (K) to form the holoenzyme (Æ K). Lack of vitamin K brings about a decrease of prothrombin production. This may occur in the newborn, in obstructive jaundice, and other conditions in which the body fails to secure a sufficient supply of this fat-soluble vitamin. Lack of apoenzyme is still hypothetical, but it satisfactorily explains certain hypoprothrombinemic states such as congenital low prothrombin which is completely refractory to vitamin K.

Much clinical interest is centered on the antivitamin K compounds of which Dicumarol is the prototype. The action of such compounds is most satisfactorily explained by postulating that they act by competitive inhibition replacing vitamin K in the enzyme system Æ K according to the law of mass action equation: $Æ\ K + D \rightleftarrows Æ\ D + K$. The resulting Dicumarol complex Æ D is inactive. By giving large doses of natural vitamin K_1, the reaction can be reversed and the hypoprothrombinemia of Dicumarol can be effectively counteracted.

Two interesting but generally unrecognized facts concerning prothrombin should be mentioned. The first is the apparent large demand of the body for this clotting factor. In twenty-four hours the quantity of prothrombin utilized is roughly equal to the total amount in circulation. The second is that in adult human blood a large fraction of the total prothrombin is in an inactive state, prothrombinogen, whereas in newborn blood, little or none of this inactive form is present, but the free or active is the same in amount as in the adult blood.[10]

Labile Factor.—Although this agent is equally as important as prothrombin, its very existence was not even suspected until the agent was discovered in the Marquette laboratory in 1943. This can be explained by the uncommonness of labile

factor deficiency. It is sufficiently abundant in blood so that it rarely falls below the critical level. It may become diminished after severe liver injury, but neither vitamin K deficiency nor Dicumarol influences its concentration. Labile factor deficiency may be congenital and there is even evidence that this defect may be hereditary.[1] This clotting factor is a protein which like prothrombin is inactivated at 58°C. Whether it has any function other than its thrombinogenic activity, it is not known. Why its concentration is much greater in animal bloods such as that of the dog and rabbit than in the human likewise cannot be explained.

Calcium.—Contrary to the generally accepted view that calcium acts catalytically in the clotting reaction, the experimental evidence clearly points to the fact that it enters the thrombinogenic reactions stoichiometrically. It is likely that calcium is combined with one of the factors in the prothrombin complex. Since fatal tetany occurs at a calcium level of the blood that is still entirely adequate for optimal clotting, hypocalcemia as a cause of defective clotting is theoretically impossible.

Platelets.—Platelets do not contain thromboplastin but merely supply an agent which reacts with thromboplastinogen to form thromboplastin which in behavior is similar to the substance found in tissue extract. The platelet factor is probably a lipoid which is heat stable but deteriorates on storage.

Thromboplastinogen.—Since the evidence is fairly conclusive that the clotting defect in true hemophilia is a quantitative deficiency of thromboplastinogen, this agent is of great clinical importance. The control of the concentration of this factor in normal individuals is not known, but it apparently fluctuates widely and acquired hypothromboplastinogenemia may constitute a clinical entity that may account for a hitherto unexplained hemorrhagic state.

The Autocatalytic Reaction of Blood Clotting

Sufficient data are now available to express the over-all reactions of blood clotting in terms of chemical equations. It must be realized, however, that such equations are intended to serve as a general expression rather than as an exact and detailed presentation of the actual chemistry involved. Thus, the action of thrombin on fibrinogen is given by the simple equation: Fibrinogen thrombin fibrin. It is adequate and practical but according to recent findings is far from expressing the complete chemistry of the reaction. Instead of one step there is evidence that the process involves several including a splitting of a fibrinopeptid from the fibrinogen, thereby activating the latter and bringing about its polymerization.[2,3] While this new information is of theoretical interest, it had no immediate clinical importance. The simple equation continues to remain the best guide and the law that the speed of the clotting of fibrinogen is a function of the concentration of thrombin remains an underlying principle on which the whole concept of coagulation depends.

The equation that expresses the interaction of the factors that produce thrombin may be written as follows:

Thromboplastin + labile factor + calcium + prothrombin = thrombin. In presenting this equation there is no pretense that it is an accurate expression of the actual chemistry. It merely conveys the idea that four substances interact in a stoichiometric fashion without specifying how and in what sequence the reactions between the participating reagents occur. Of real significance is the fact that a decrease of any one of the four factors will cause a diminished production of thrombin and, if sufficient, will result in a hemorrhagic state.

It has long been known that the addition of tissue extract to blood hastens coagulation. The active agent in such extracts was first called zymoplastic substance, later thrombokinase, and in recent years more commonly, thromboplastin. It seems certain that blood contains no preformed thromboplastin, and that clotting does not occur until active thromboplastin becomes available. From the studies which were done in our laboratory, it was established that platelets and the plasma constituent, thromboplastinogen, together bring about thromboplastic activity in plasma. Significantly, however, if a potent extract of platelets is added to native plasma which has not been in contact with a wettable surface such as glass, little or no thromboplastic activity is generated; if, however, a very minute amount of thrombin is added to the native plasma, the reaction between

platelets and thromboplastinogen proceeds rapidly.[9] Obviously, thrombin acting as a catalyst initiates the reaction and supplies the link in the chain reaction. Platelet extract cannot react with the thromboplastinogen in the state it exists in circulating blood. The first essential reaction in the cycle is the activation of thromboplastinogen by thrombin. As soon as this occurs, the reactions proceed unhampered to form more thrombin. The sequence of events may be summarized as follows:

1. Thromboplastinogen $\xrightarrow{\text{thrombin}}$ thromboplastinogen A (activated).
2. Thromboplastinogen A + platelet factor = thromboplastin.
3. Thromboplastin + labile factor + calcium + prothrombin = thrombin.
4. Fibrinogen $\xrightarrow{\text{thrombin}}$ fibrin.

According to this scheme, the autocatalysis is through the thrombin, and unless means exist to remove this agent promptly, even a very minute amount gaining entrance in the blood stream would be enough to clot all of the circulating fibrinogen. Nature, however, provides an ingenious device to control the reaction. Thrombin is promptly and effectively removed by the fibrin clot itself.[8] Fibrin surface adsorbs thrombin with avidity and since serum is dispersed in the fibrin reticulum, any thrombin formed is immediately removed due to the intimate contact of serum and fibrin surface. Since clot retraction disrupts this close contact between serum and fibrin, this mechanism reinitiates the chain reaction and therefore probably plays an important role in intravascular clotting.

The Relation of The Coagulation of Blood to Hemostasis

The coagulation of blood is a vital part of the hemostatic mechanism but is by no means the sole means that the organism has to achieve stanching. In primitive forms of life the reflex contraction of vessels following injury and the gluing property of irritated endothelium are sufficient by themselves to control and stop bleeding. These same reactions occur in the higher animals as well as in man and play a significant role in the control of bleeding. In the evolution of coagulation, one of the first steps is the development of a cell which possesses the ability to agglutinate, thus forming sticky masses that are utilized by the organisms to seal injured blood vessels. These primitive blood cells find their counterpart in the platelets of mammalian blood. The platelets have a threefold function in hemostasis: (1) they agglutinate forming white thrombi which may function as mechanical plugs; (2) they furnish the agent which reacts with thromboplastinogen to form thromboplastin; and (3) they generate a powerful diffusible vasoconstrictor, thrombotonin, which chemically is 5-hydroxytryptamine. Obviously, platelets have a central position in hemostasis, but their action can occur only when sufficient thrombin is available.

Thrombin is the key substance in hemostasis and true coagulability is synonymous with thrombinogenesis. It is now generally established what the primary agents are that are needed to form thrombin; and tests such as the one-stage prothrombin time, and the prothrombin consumption test, offer means for the quantitive estimation of some of these factors. The groundwork has been laid for developing a practical and integrated concept of hemostasis. Real progress in the exact diagnosis and the successful management of the hemorrhagic diseases should therefore be forthcoming.

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MODERN HEALTH PROBLEMS OF THE UNITED STATES

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THE Centennial Program of a great hospital should be a forceful reminder of the march of progress, of the differences in medical problems and practice over the years. The alterations are most obviously reflected in the physical facilities and the therapeutic tools at hand but more important are the changes in the patients themselves. The gamut of diseases to which man is heir may be the same but the relative incidence of these diseases reflects the age structure of the population as well as the enormous improvement in the control of infective and parasitic diseases. At the immediately practical level of individual diagnosis and treatment, the practice of medicine does not lag far behind the changing demands for individual medical care; competition within the profession and between the supply houses assures this. But the case is otherwise in regard to the larger issues of the health and disease of populations.

To a large extent, the whole paraphernalia of our medical and health organizations, of medical schools, textbooks, and public health systems, is slow to adjust to problems of health and disease that have changed radically in the past few decades. This is understandable but it also means that there is an urgent need for constant re-evaluation of the character and magnitude of our several health problems. And it is sensible to begin such an analysis at the most elementary level.

The most elementary criterion of the health of a country is obviously the death rate. But without further specification the crude death rate is almost meaningless. The so-called "expectation of life" is a popular method of expressing the over-all national health and it is agreeable to observe that in fifty years the expectation has increased from forty-eight to sixty-six years for white men and from fifty-one to seventy-two years for white women. Further analysis shows that this improvement in the expectation of life is primarily a reflection of better health in infancy and youth. Out of a thousand live births in 1900, about 140 were dead before the year was out. In 1949 the number was only thirty-three. But the improvement at older ages is much less impressive. This is apparent in Table I which summarizes the change in the expectation of attaining the age of 70 years.

TABLE I. PERCENTAGES OF U. S. WHITE MEN ("M") AND WOMEN ("F") EXPECTED TO ATTAIN THE AGE OF SEVENTY YEARS FROM VITAL STATISTICS FOR 1900 AND FOR 1949.

Alive at	Per Cent to Attain 70				Per Cent Gain	
	1900		1949			
	M	F	M	F	M	F
Birth	30.6	35.2	50.9	66.7	66.3	89.5
Age 20	40.1	44.6	53.7	69.4	33.9	55.6
Age 30	43.0	47.6	54.7	70.0	27.2	47.0
Age 40	47.2	51.8	56.1	71.2	18.9	37.4

It will be observed that 47.2 per cent of U. S. white men aged forty in 1900 could expect to be alive at age seventy and that, by 1949, 56.1 per cent such men had the same expectation. This is a gain of 18.9 per cent. In 1900 U.S. white women had a better expectation than the corresponding men and their superiority was still more marked by 1949. For the age of forty years the improvement in the females was about twice as great as in the males.

The data in Table I should be a cause for some gratification but we still cannot be content when barely half of our men who reach manhood can expect to reach the age of seventy. And why should American women be so much healthier than their husbands?

Comparison of the death rates from all causes for U. S. men and women to age seventy is shown on a logarithmic plot for the latest year of record, 1949, in Figure, 1.

This helps to show details in a situation where the relevant numbers cover such a large range but the particular virtue of the logarithmic plot is that on it a straight line means a constant rate of

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change. This plot shows straight and parallel lines for both sexes from thirty to seventy. One mathematical slope suffices to define the relationship of total death rate to age for both sexes, the women

Americans beyond the age of thirty. But if this is the case in the United States, the richest and supposedly most advanced part of the world, what about the unfortunate people who live elsewhere?

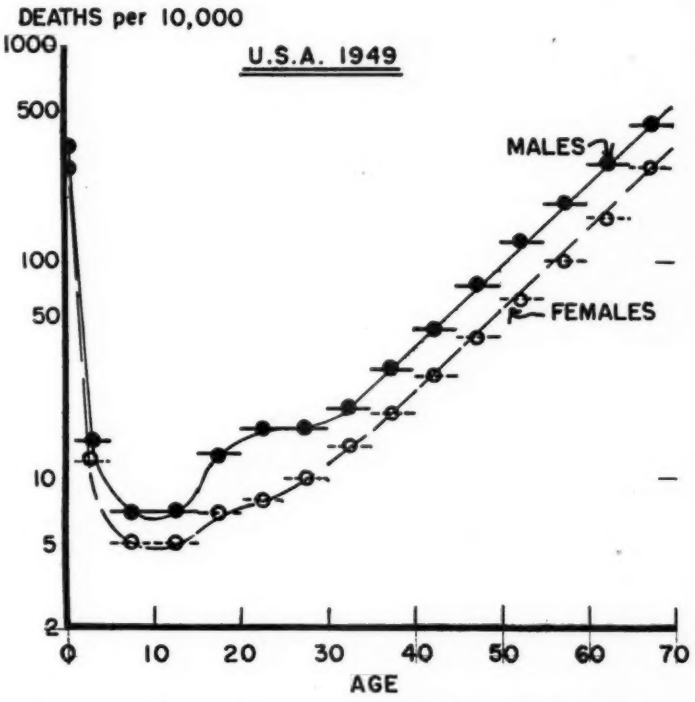

Fig. 1. Deaths from all causes, per 10,000 living persons of given age. The lines for the two sexes were drawn from age thirty-five to age seventy with parallel rulers.

being constantly about five years "younger" than the man in this sense.

Now by the year 1949, in America we had reached the situation where the older biological hazards of man—starvation and contagion—had largely disappeared and the death rates over thirty were basically determined by self-generating metabolic diseases. Cardiovascular disease, mostly of the degenerative type, and neoplasms alone account for almost two-thirds of the deaths from thirty to seventy years of age. So it might be suggested that the straight lines in Figure 1 are the expression of the basic metabolic, "aging" character of man. This would correspond to the fact that the enormous progress of medical knowledge, public health programs, and in the practice of medicine, and medical care, has brought only a limited improvement in the total mortality of

In Europe, for example, where race, climate and general culture are similar to our own?

Elsewhere[3,4,5] I have presented some of the current vital statistics data for various European countries as well as for Canada, Australia and New Zealand. These show the surprising, and disconcerting fact that the death rates from the total of all causes at equal ages tend to be substantially higher from ages thirty to seventy for American men than for men of many other countries of similar culture. Here a single example, that of Italy, is summarized in Table II.

The data in Table II show that from age thirty on our current mortality experience is progressively unfavorable as compared with Italy. This discrepancy is marked for men and relatively trivial for women. The effect on the numbers of survivors of these different death rates of men in

TABLE II. DEATH RATES, FROM ALL CAUSES, PER 1000 LIVING OF GIVEN AGE, FOR U. S. A. (1949) AND FOR ITALY (1948.)

Age	Men		Women	
	U. S. A.	Italy	U. S. A.	Italy
30-34	2.5	2.7	1.7	2.3
35-39	3.6	3.4	2.5	2.9
40-44	5.6	5.1	3.6	3.6
45-49	8.7	7.3	5.4	4.7
50-54	13.5	10.4	7.8	6.9
55-60	19.7	14.5	11.2	10.3
60-64	29.0	21.8	17.3	16.8

the two countries is negligible to about age fifty if we begin with equal numbers at age thirty. But the effect on survival to age seventy is not trifling. Starting with 1,000 living men aged fifty in each country, by age seventy the American group may be expected to dwindle to 573 while the Italians would be 662 strong. The Italian "health," in this regard, is very considerably better than our own. Why?

How can we explain this surprising fact that Italian men have this over-all superiority in mortality? If the vital statistics of other European countries are examined it appears that it is not so much that Italian men have a remarkably fine health record over a major part of the life span; the distressing fact is that the men in many other countries have lower mortality rates than Americans over the years from forty to seventy. The men in England and Wales, Holland, Denmark, Belgium, Sweden, Scotland, New Zealand, Australia, Norway, and even next-door Canada have notably better records than our own. But Italy is a particularly interesting example and it is illuminating to consider a few details.

Comparison of rates of deaths ascribed to specific causes is always risky but at least some possibly significant trends may be discerned if due precautions are observed and if the data are reasonably complete, as is the case in both Italy and the United States in recent years. Such comparison indicates that for many diseases there is no important difference between the age specific death rates in Italy and in the U. S. For men, the rates for intracranial lesions of vascular origin, for cirrhosis of the liver, for nephritis, for all neoplasms and for all violence are similar. As would be expected from our knowledge of the incidence of tuberculosis, the Italian death rate reported for infective diseases is considerably higher than that reported for the U. S. But the vital statistics inescapably lead to the conclusion that American men have a far higher death rate from circulatory diseases than do the corresponding Italians. For example, for men of fifty through fifty-four, the rate of deaths ascribed to diseases of the circulatory system is 5.7 per thousand in the United States as compared with 1.9 per thousand in Italy. A similar difference exists from age thirty to seventy.

Most physicians distrust vital statistics. They have seen too many cases where the death certificates recorded mere guesses—or worse. But healthy skepticism should not mean a refusal to analyze the evidence. It is easy, but not very intelligent, to dismiss the matter by saying that "heart disease" is a catch-all label for absent information and bad diagnosis or to suggest that Italian doctors do not recognize heart disease when they see it. The fact is that the statistics on heart disease in the United States and in Italy explain the otherwise inexplicable difference in the *total* mortalities.

It is particularly interesting that the big difference between Italy and America in circulatory disease mortality is in the "degenerative group," including coronary disease, angina pectoris, myocardial degeneration, chronic myocarditis, arteriosclerotic and hypertensive heart disease. Apart from this group, the mortality from other circulatory and cardiac disease is very much the same in the two countries. It is impossible to doubt that, compared with Italy, our men have a greatly excessive incidence of degenerative heart disease. Our women, on the other hand, are much less different from their Italian counterparts. For example, for ages fifty to fifty-four, the total death rate from all causes of white American women was 7.8 in 1949; for the comparable Italian women it was 6.9; for circulatory diseases the rates were 2.0 and 1.4.

It is widely agreed that for American men, atherosclerosis, the outstanding basis of most of this heart disease, is the leading health problem of our time. Argument waxes hot about the cause of atherosclerosis but there is rapidly building up a veritable mountain of evidence leading to several conclusions.

First, there is no doubt that cholesterol in the blood is involved in atherogenesis. The fact that the cholesterol is transported in the blood as lipoprotein aggregates is interesting but does not change this conclusion. And the material which

TABLE III. MEAN VALUES, FROM REGRESSION ANALYSIS, FOR SERUM TOTAL CHOLESTEROL CONCENTRATION IN CLINICALLY HEALTHY MEN IN NAPLES, AS PERCENTAGES OF THE CORRESPONDING VALUES FOR MEN IN MINNESOTA (TWIN CITIES.)

Age	Cholesterol	Age	Cholesterol
20	100	45	94
25	102	50	89
30	104	55	87
35	103	60	85
40	99		

TABLE IV. MEAN VALUES FOR SERUM TOTAL CHOLESTEROL CONCENTRATION IN CLINICALLY HEALTHY MEN IN MADRID, AS PERCENTAGES OF THE CORRESPONDING VALUES FOR MEN IN MINNESOTA (TWIN CITIES).

Age	Cholesterol	Age	Cholesterol
20	102	45	86
25	101	50	80
30	100	55	77
35	98	60	74
40	96		

makes up the atheromata is cholesterol, not beta lipoprotein or "giant molecules."

Second, the diet plays a major role in determining the amount of cholesterol in the blood. No other factor of comparable importance is yet recognized. The cholesterol itself in the diet is unimportant, at least in man, but the total dietary fats, vegetable as well as animal fats, have a dominant effect, as we have consistently found in many controlled experiments on man.[3,5,6,8]

With this in mind, it is significant that the American diet today is higher in fat than anywhere else in the world—and that includes the Eskimos.[3,4,5,11] Over 42 per cent of our calories come from fats as compared with the Italian national diet of just 20 per cent of calories from fats.

All of this being the case, it is not surprising to discover that the blood cholesterol picture in men in Italy differs from that in the United States. In the United States, at least in the urban centers studied so far—Minneapolis-St. Paul, Boston, New York, San Francisco—the concentration of the serum total cholesterol in clinically healthy men presents a characteristic and significant picture.[9] There are large individual variations but the trend is steadily upward from late adolescence until late middle age, with a downward trend thereafter. A closely similar age trend appears in the concentration of the lipoprotein-cholesterol complexes characterized in the ultracentrifuge by sedimentation rates of —10 to —20 Svedberg units.[2] In the sample of Neapolitan men studied, however, this trend is followed only in the younger men up through the thirties and thereafter the cholesterol concentration does not tend to rise further.[7] Table III summarizes the picture.

Is it coincidence that the mortality rates of men in the two countries begin to diverge at about the same age as the divergence in the serum cholesterol concentration? And is all this mainly a reflection of the differences in the habitual diets in regard to fats? The factor of relative obesity of the subjects is not involved because it was found that the Italian subjects closely corresponded to the Minnesota subjects in body fatness as judged from height-weight ratios and from measurements of the subcutaneous fat (skinfolds) in the two groups.

We have similar information from another low-fat diet country, where, in addition, many of the poor people are underfed. Table IV shows data from the poor population of Madrid and again the picture in the young men is similar to that in the U.S.A. but there is an increasing divergence after thirty years of age. The combination of a diet low in total fats and calories seems to be associated with a remarkably low level of blood cholesterol after age thirty.

Now in Spain, for the great majority of the population the diet is low in fats and meager in total quantity but the rich people, including the professional class, live very differently. Their diet is high in fat, like our own, and they eat enough of it to make their bodies at least as fat, in general, as those of Americans. A detailed study of a sample of these high-calorie, high-fat eating men in Madrid showed the cholesterol level in the blood of these rich Spaniards is at least as high as it is in Minnesotans. From age forty to age fifty-five, at least, the rich Spaniards on a high-fat diet exhibited much higher serum cholesterol concentrations than their poor compatriots who live on a low-fat diet. At age fifty, for example, the mean values for the serum from casual blood samples were 210 mg. per 100 ml. in the poor men and 265 in the rich men.

The wealthy and professional class in Spain represents only a very small fraction of the total population of the country so the national mortality rates are overwhelmingly dominated by the mortality of the general poor population. For the

year 1949 the official statistics for the entire Spanish population indicate that, among men of fifty to fifty-four years, all heart diseases accounted for 18 per cent of the total deaths; the corresponding figure is 38 per cent for white American men of the same age.

Vital statistics in Spain are of dubious reliability but even casual inspection of hospital populations and the case records of leading physicians clearly indicates that coronary and related heart diseases are infrequent indeed in the general poor population but are very far from a rarity among the wealthy and professional classes.

Finally, the fact that Spain, like Italy, differs from the United States in regard to heart disease, is indicated by the sex ratio of cardiac deaths. At age fifty to fifty-four the cardiac death rate for men is almost three times that for women in the U. S.; in Spain the ratio is only 1.3 to 1.0.

Data on these questions of the diet, the blood cholesterol and the mortality from heart disease have also been collected from England. The English findings[3,4,5] indicate: (1) an average diet somewhat lower in total fats than in the United States but very much higher than in the diets of Italy and Spain; (2) serum cholesterol values resembling those in the United States; (3) for middle-aged men lower mortality rates from the total of all causes and somewhat lower rates ascribed to heart diseases. The indicated mortality from heart diseases is much more like that of the U. S. than like that of Italy.

All this evidence, and much more that could be cited in greater space, suggests a general rule that degenerative heart disease is directly related to the total fat content of the diet, the connection probably being through the effect of the dietary fats on the level of cholesterol and lipoproteins in the blood. This idea can be tested to some extent by a comparison of age-specific death rates and national diets in several countries for which reasonably acceptable data are available. For the countries studied so far there is a consistent and regular relationship between the two variables of percentage of dietary calories derived from all fats and the male age-specific death rates from forty to sixty-five years of age ascribed to "degenerative" heart disease (coronary disease, angina pectoris, myocardial degeneration, chronic myocarditis). Very much the same relationship holds when the total of all circulatory disease mortality is substituted for degenerative heart disease. The countries from which data have been obtained so far include, besides the United States and Italy, England and Wales, Canada, Australia, Sweden and Japan.

It is possible to question the final accuracy of the vital statistics involved in such analyses and it is possible to suspect errors in the dietary data. But the fact remains that, on national bases, what the physicians are labelling degenerative heart disease is closely related to what the agricultural and nutrition experts are reporting about fats in the diet. And this relationship is, in fact, in conformity with all of the previous discussion in this paper about diet, cholesterol, atherosclerosis and cardiac mortality.

As this paper was being prepared, I was privileged to see the manuscripts of two important articles from Johannesburg, not yet published, reporting findings on South African Bantu. Walker and Arvidsson[12] show that the South African Bantu, subsisting on very low intake of total fats, is strikingly different from Americans in serum cholesterol concentration resembling, in this regard, the Italians and poor Spaniards mentioned previously. Higginson and Pepler,[1] in turn, provide a careful study of post-mortem data on the Bantu from which it appears these low-fat diet, low-serum cholesterol people suffer singularly little from severe coronary artery disease and atheroma.

One further point should be noted. In the late World War several countries which were able to maintain good medical and public health systems revealed some remarkable changes in morbidity and mortality from arteriosclerotic heart disease. In Finland, Norway, and to a lesser extent in Sweden and Denmark, dietary fat decreased and within two years there was a distinct and progressive decline in arteriosclerotic heart disease (cf. e.g. 10). There was no such change in Britain but dietary analysis also showed that there was no decrease in the proportion of total fats in the British diet during the War.

Finally, it is pertinent to reflect on two sets of data and their possible relevance to our present problem of heart disease in American men. The first is the dietary trend of the United States over the past forty years. Since the beginning of record in 1909, an upward trend of fat consumption has continued, rising from an average of about 30

per cent of total calories to the current value of well over 40 per cent. In the light of all we know at present, does this trend constitute a medical and public health problem?

For the last point, it is interesting to consider the sources of our present dietary fats. By far the largest contributor is fats and oils as such, excluding butter; these account for 40 to 50 per cent of the total dietary fats. This means cooking and salad fats and oils are the main source of our fats in the diet. It is clear that there is ample room to reduce our total fat intake markedly without disturbing the real nutrient value of the diet. It would be readily possible to reduce our total fat intake by a third and still eat abundant amounts of meats, dairy products, fruits, green and leafy vegetables, cereals and eggs.

It should be observed that the main problem with which we are concerned in the present discussion is that of degenerative heart disease in the male. Information about the situation in the female is much less complete but it appears there are major differences between the two sexes in this regard, at least up to the age of fifty or a little later. At earlier ages the female tends to be protected, by some device yet unknown, from the high incidence of coronary disease which appears in men on high fat diets. Hence the apparent desirability of limiting the total fat content of the American diet is restricted, on the basis of present evidence, to adult males. It is in this segment of the population that the heart disease problem is most difficult and where the dietary effect is most clear.

In this paper there is presented only a highly condensed statement of many facts and relationships. Obviously, a great deal more research is needed before we can reach final conclusions and devise suitable application in a real program of public health. The challenge of degenerative heart disease is tremendous and, as yet, only trivial resources are devoted to a modern epidemiological approach such as indicated here. But it may be hoped that the significance of the data now at hand, and the need for further study on a greatly expanded scale, will be recognized and that appropriate action will result.

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WOMEN IN MEDICINE

(Continued from Page 725)

services are immaterial. From my associations with the Women's Medical College, I would reply unhesitatingly that the time is long overdue when women physicians should enter more intimately into the program of modern medicine.

I believe women physicians bring the type of service that is greatly needed to bolster the resources in this period of doctor shortage. Young women with academic qualifications and scientific interest could do no better than enter the profession of medicine. They should be inculcated with knowledge that is invaluable for dealing with the particular social and health problems of our growing population. In compensation, they would find open to them the stimulating association of academic medicine and the gratifications of humanitarian works. It is believed that as women indicate their desire to study medicine, the Foundations and other interested groups as well as the medical colleges, in turn, will provide opportunities for their education. Among the doctors of the future, there should be a full complement of women physicians.

Laboratory Aids to Medical Practice

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BLOOD BANKING IN SMALLER MINNESOTA COMMUNITIES

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THOSE PERSONS responsible for present-day transfusion programs must be cognizant of two distinct situations, namely, the twentyfold to thirtyfold increase in the use of blood and plasma that has taken place relatively recently and the complexities of modern blood grouping and crossmatching. The modern surgeon, physician or obstetrician can and should require that an adequate supply of blood will be available when needed and that such blood will do no harm to his patient.

This great increase in the use of blood and plasma has occurred in smaller rural hospitals as well as in large central institutions. Not only has the volume of planned major surgery increased sharply in these small hospitals but also, due to mechanization of agriculture and greater highway traffic, the amount of emergency traumatic surgery has increased. This augmented amount of surgery in the local hospital has not eliminated, however, the very considerable movement of patients referred to various central institutions. Blood required by these referred patients must be replaced by friends and relatives at home. A modern transfusion program should supply this blood without requiring donors to travel long distances to the central points. Convenience and expense would dictate that the blood, not the donor, be transported from the local hospital to the patient where he is hospitalized.

It should be almost needless to point out that if the blood itself is to be shipped to the central institutions, it must be drawn under rigidly controlled conditions, such as those set up by the National Institutes of Health.

Those problems dealing with grouping and crossmatching have increased greatly in the past ten years. The technologist of today should have a clear concept of reverse (serum) grouping, 6-tube confirmation grouping, determination of subgroups of A, Rh-Hr slide and test-tube grouping, saline crossmatching, high-protein crossmatching and the use of Coombs' test as an adjunct to crossmatching. She must be able to recognize artefacts and nonspecific interferences. She must know how to provide blood for emergencies. Finally, she must understand why and how transfusion disasters occur. No transfusion program is safe in spite of any amount of blood on the refrigerator shelf if the technologist cannot cope with these laboratory problems.

These needs have been apparent for some time but until recently very little could be done to help the situation. With the organization of the Minneapolis War Memorial Blood Bank, however, there materialized an opportunity for great assistance to rural blood banks. Apprehensiveness of the Hennepin County Medical Society over possible political repercussions in the state organization and hesitation of the bank's executive committee concerning possible unfavorable financial obligations did exist. After careful study, both groups accepted these risks and gave their permission for the Minneapolis bank to proceed with the project of assisting rural blood banks. Dr. G. Albin Matson, director of the central bank, has devoted a tremendous amount of time to this program. Dr. A. H. Borgerson of Long Prairie organized the first rural blood bank of the affiliated system in 1950.

The small rural banks do not have difficulty in getting blood. An adequate stock for routine use can be easily maintained, and blood for emergency coverage is available from groups of standby donors, often spoken of as "walking blood banks." The details of procurement of donors vary somewhat in the different communities. At present, a total of nineteen community banks are affiliated with the Minneapolis War Memorial Blood Bank; space does not permit inclusion of a list of these banks but it can be obtained by communication with the central organization. A personal visit or at least a telephone call to a few of these banks is recommended for anyone or-

ganizing a program within his community.

Direction of the organizational phase of these plans for procurement of donors must remain with the medical group, but essentially all of the actual work and the subsequent maintenance of the project can be done by committees representative of various civic organizations.

A relatively large inventory of blood is maintained so that the local bank is thoroughly reliable. Blood unused within seven days is shipped to the Minneapolis War Memorial Blood Bank to be credited to the local rural bank.

This credit is used in a number of ways. The blood may be exchanged for irradiated liquid plasma. This plasma is controlled by the community physicians and hospital, and is commonly assigned to the hospital and also to physicians' cars, outlying physicians' offices and to sheriffs' and highway patrolmen's cars. This credit at the central bank may be used to supply blood at the various hospitals to which the community's people may be referred. It is used to provide blood for local people who become ill while traveling in distant parts of the country. The Minneapolis War Memorial Blood Bank acts as the clearing house in these activities. The transactions are carried out by wire or letter and actual shipment of blood is reduced to a minimum. Finally, the credit is used to provide rare types of blood or, more important, selected bloods in cases of crossmatching problems encountered.

The local procurement of blood, the shipment of blood and the management of credits are relatively easy and simple parts of the project. The introduction of standard methods, both those pertaining to biologic control and those dealing with typing and crossmatching of blood, is much more vital and also much more difficult.

Each technologist handling transfusions in the affiliated hospitals must come to the Minneapolis bank for indoctrination into every phase of blood banking. She learns the minimal requirements of the National Institutes of Health and of the American Association of Blood Banks. These girls, the equipment, the records and even the quarters where blood is drawn and processed remain under the control and supervision of both the Minneapolis bank and the National Institutes of Health. The rural banks are visited by both the director of the Minneapolis bank and a representative of the National Institutes of Health. In addition, blood received in the central bank from the affiliated banks is always inspected and the laboratory work done at the affiliated bank is repeated. This serves as an excellent check on the type of work done in each bank.

The technologists are urged to call or write to the central bank about their problems, to send specimens for confirmation or assistance in difficult cases and finally to return to the central bank for a week or two every year. It is hoped that some day the central bank can have one of its technologists go to each rural bank for a few days at a time to bring new methods and new ideas.

Emergencies cannot be foreseen. The few units of blood of each type customarily kept in small blood banks will not be sufficient when an emergency suddenly demands the use of 10 to 20 units. In such cases, it is not practical for blood to be hauled in from a distance. It is inevitable that every small hospital blood bank will be called on sooner or later to draw blood from local donors for an emergency. To do this properly, the technologist must have the equipment, the quarters and especially the experience to draw the blood quickly and efficiently and under stress. The day-by-day drawing of blood for routine use is the best insurance that this knowledge and equipment will be available in emergency cases.

Certain desirable side effects arise from a well-functioning community blood bank. The concept of blood banks as a part of modern hospitals and the modern practice of medicine is well fixed in the minds of the general public. A locally organized and locally controlled blood bank brings this phase of modern medicine to the community. By supervising and controlling this part of their practice, the community doctors and the community hospital gain in stature and prestige.

* * *

This is the seventh in a series of editorial reports sponsored by the Minnesota Society of Clinical Pathologists and designed to foster closer relationships between laboratory physicians and their colleagues. The administration of blood and of volumetric substances as blood substitutes has become almost a separate specialty in modern medical practice. The pathologist has played a vital part in this expansion because it is only through constant research and the betterment of laboratory procedures that the present degree of safety in use of blood has been attained.

It is important that adequate facilities for transfusion of blood be as widely available as is possible. The activities of Dr. Koucky, Dr. Matson and their associates have extended the opportunity for such service to a considerable number of communities throughout the state. It is hoped that this program can be expanded.

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Case Report

SPINAL INJECTION OF BLOOD TO LOWER BLOOD PRESSURE IN ESSENTIAL HYPERTENSIVE PATIENTS

Report of Two Cases

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A WELL-KNOWN observation among the medical profession is that many hypertensive patients who sustain a severe cerebro-vascular accident and survive, eventually develop a normal blood pressure. It is equally well accepted by the medical profession that the cause of the blood pressure's dropping down to normal in these same cases, is quite unknown. The authors of this report have wondered if introducing the blood of these essential hypertension patients into the spinal canal before they sustain a cerebro-vascular accident, might eventually have the same lowering effect on the blood pressure as it would had they had a cerebro-vascular accident. Immediately, many unknown problems presented themselves. In order to circumvent these unknown problems, we naturally thought of carrying out the tests on animals. However, immediately the question arose—how can one produce essential hypertension in animals? Hypertension can be produced in animals experimentally, but this form of hypertension is entirely different from what we know as essential hypertension. A new problem to produce essential hypertension in animals presented itself, a problem we felt we could not solve. The experimentation on animals seemed impossible in view of present known facts and therefore offered no immediate encouragement.

We recalled the observation on patients who had had accidents of different kinds which produced a bloody cerebro-spinal fluid as a result of the accident, and who suffered no deleterious after-effects from having had a bloody spinal fluid *per se*. In due time, the bloody spinal fluid cleared up and the patient suffered no ill after-effects.

It also occasionally happens that in performing a spinal puncture, blood enters the spinal canal and no ill after-effects are observed. Ventriclo and spinograms for diagnosis, and spinal anesthesia have been used for a long time. Neuro-surgeons operate on the spinal cord and brain with impunity. Medical as well as neurological textbooks describe no pathology, nor entity, nor syndrome, that is attributed to a bloody spinal fluid *per se*. In discussing the idea of injecting the patient's own blood into the spinal canal for hypertension with able clinicians, neurologists and a neuro-pathologist, they related that from their observations they could not recall any residual pathology produced by the blood in the spinal canal *per se*. This statement from these able men was indeed encouraging.

The summing up of the already mentioned observations on blood in the spinal canal, plus this final statement from these men gave us further encouragement to finally test the idea directly on hypertensive patients. Since there was no guide to follow, we naturally proceeded cautiously. The patient was admitted to the hospital in the morning without breakfast, put to bed, and allowed to rest at least an hour before the spinal puncture was made and the hypertensive's blood injected into the spinal canal. The patient remained in bed with the foot of the bed elevated until the next morning. Blood pressure readings were taken at different intervals during the day. By the following day when the patient was discharged, no ill after-effects had been observed, nor did she have any complaints differing from those on admission. In the following two cases described, the patients remained free of any ill after-effects following the intraspinal injection of blood, during the entire course of the tests. The syringe for aspirating the blood was not moistened with citrate solution. One of us performed the spinal puncture, and the other then withdrew the blood from the arm, and little time was then lost in injecting the blood into the spinal canal. At no time was the spinal fluid observed to be discolored from the previous blood injection; neither did there appear to be any increase in the spinal fluid pressure. Each blood injection seemed to be as non-disturbing to the patient as a spinal puncture for diagnostic purposes. The first injection in each case consisted of 1 cc. of the patient's own blood.

Case Reports

Case 1.—Mrs. J. F., aged sixty-three, the mother of several grown children, retired from the farm several years before, because of a blood pressure that varied from 200/120 to 240/140. There was no appreciable drop in the blood pressure after moving from the farm to a neighboring town for rest and quiet. On June 17, 1952, she had her first spinal injection of 1 cc. of her own blood. The blood pressures during her hospital stay were recorded as follows: 190/120, 218/120, 220/120, 212/118, 180/95, 180/90, 170/80, 170/80, 180/110.

On June 21, 1952, she had her second injection of 1 cc. of her own blood into the spinal canal. The blood pressure readings for that stay were as follows: 238/120, 240/120, 210/115, 194/96, 172/100, 172/90, 172/88, 172/68, 180/80, 184/84, 200/100, 190/100, 202/120.

On June 25, 1952, she had her third injection. This time 2 cc. of her blood was given and the blood pressure was recorded as follows: 242/130, 238/130, 246/140, 246/128, 238/126, 162/98, 220/120, 248/134, 250/134, 250/132, 190/130.

On June 30, 1952, she had her fourth and last injection. This time 4 cc. of blood was given. The blood pres-

sure readings for the stay were as follows: 244/178, 254/140, 254/134, 274/138, 260/138, 248/150, 246/138, 240/138, 228/140, 214/80, 216/100, 210/110, 216/130, 210/127.

Case 2.—Mrs. E. S., aged thirty-eight, the mother of two children, lives in town. She had a long record of fluctuating blood pressure that ranged from 220/130 to 240/130. On October 10, 1952, she was given her first 1 cc. of blood into the spinal canal. Her day's blood pressure readings were as follows: 175/125, 160/100, 155/100, 166/98, 150/90, 170/110, 162/108, 160/112, 160/-110, 168/112, 166/108.

On October 17, 1952, she had her second blood injection of 1 cc. of blood. The blood pressure recordings for the stay were as follows: 180/112, 142/88, 164/112, 150/100, 172/110, 144/90, 150/98, 132/80, 162/94, 160/120.

On October 30, 1952, she had her third injection, this time 2 cc. of blood was given. The blood pressure readings were as follows: 170/116, 188/118, 156/96, 128/74, 156/86.

On November 20, 1952, she was given 4 cc. of blood. The delay from the last injection on October 30, was due to the polio epidemic that was so prevalent in the state. The blood pressure recordings were as follows: 135/90, 180/100, 140/88, 120/80, 170/110, 160/100, 152/102, 120/-88, 124/84, 166/118.

On December 2, 1952, she was given her fifth and last injection of blood. This time we gave 5 cc. of blood. The blood pressure recorded as follows: 180/132, 152/96, 164/100.

Discussion

These two cases have been diagnosed as essential hypertension as we understand that classification. The follow-up on Case 1 was not too satisfactory. On July 30, 1952, when the patient reported to the office, her blood pressure was 200/106. On September 30, 1952, it was 190/96. No further readings have been recorded. She volunteered the information she felt so different that she believed it was not necessary to report further. That she was less tense and calmer in every way, was quite evident. Her husband also commented on that condition. The pulse was likewise in accordance with that feeling on her part. She was quite sure she would continue to improve. She wanted to return to their farm this spring as she felt so much better. They have since returned to the farm. Indirectly, we have learned that she continues to feel improved.

The second patient has been very co-operative. Her blood pressure sixteen days after the last injection of 5 cc. of blood was 160/90 on December 18, 1952. On January 19, 1953, it was 148/90. February 12, 1953, it was 150/96. The same observation was made on this second case by both the family as well as by us. There was that very marked reduction in the nervous tension as well as increased calm so very noticeable in her behavior. The same was also true in regard to the pulse. The full bounding pulse was absent. If this absence of the tension and strain continues, it would seem logical to assume that the blood pressure will continue to drop to a still lower level in time to come. The second patient stated she was now attending church and was again able to mingle with crowds, something she had not been able to do for a long time. Our impression has been that if the injection of the hypertensive's blood into the spinal canal would simulate a stroke it would be some months before it would show any appreciable effect. The little improvement that we have observed seems to carry out this impression. If this should be so, it would appear that the blood so injected would have what might be termed a "self-immunizing" effect on the blood pressure.

Again, many questions present themselves. Possibly we were too cautious in the amount of blood we injected each time. Since there is around an average of 150 cc. of normal cerebro-spinal fluid in the central nervous system, it is possible that a larger amount of blood could have been used each time. Maybe more injections should have been given. But having no guide to direct us, we wanted to stay on very conservative ground. Well do we realize that no definite conclusions are justified from our experience with these two patients who have been reported. There are, however, certain aspects which are encouraging. The one observation that really stimulated us to report these two cases was the very noticeable calm and absence of tension in both of the patients following the treatment. Possibly the subsiding nervous tension and return to calm is a forerunner of the drop in blood pressure, even as the gradual drop in temperature and pulse rate observed in certain infectious diseases is a forerunner of improvement in infectious cases.

If beating the hypertensive cerebro-vascular accident to the draw, so to speak, could be accomplished by injecting blood into the spinal canal before such an accident should occur then we would have a comparatively simple therapeutic procedure for a disease for which at present we have no specific treatment. We believe that our experience indicates the desirability of further research at a center where much material is available and full time can be devoted to provide an evaluation of the procedure. It is not always convenient to carry on an extra program of extreme interest such as this, in addition ot the full day's work of a rural practitioner.

Tuberculosis is a completely unnecessary disease. It is a communicable disease caused by a specific micro-organism. Money spent on its control under the guidance of competent administrators is more than returned to the general economy through eliminating loss of production by those so protected and through converting tax dollar consumers into tax paying citizens. Although every person must die eventually of something, tuberculosis definitely is not included in that group of inevitable fatalities. Desirable though it is to spend money on research and control programs for heart disease and other non-communicable public health problems, it is poor economy to do so at the expense of tuberculosis control programs. Tuberculosis control, therefore, should continue to receive individual support from appropriating bodies, public health administrators, and the general public.—James E. Perkins, M.D., *Bulletin of the NTA,* April, 1953.

History of Medicine In Minnesota

MEDICAL HISTORY OF THE COUNTY OF YELLOW MEDICINE

MILDRED B. LEE
Granite Falls, Minnesota

(Continued from the June issue)

First settlement was made near the site of the Agency, where half ruined buildings furnished some building material. Part of Dr. Wakefield's house was still standing and habitable and the Olds family moved into it for what was to be a long period of residence. Eventually Mr. Olds rebuilt the two-story brick house along its original lines, and it stands today, the oldest house in the county.

Lacking other building materials the first settlers built their houses of what was at hand; thick prairie sod, a few logs, and earth. The houses were of two kinds, dugouts and sod houses. The construction of a dugout is described by Gjermund O. Homme, an early settler who came in 1866, as follows:

"First they dug a pit about five feet deep with a deeper pit in one corner to be used as a cellar or "cold well." After the pit was dug they fitted two logs, one on top of the other, about the edge, then fashioned poles across the top, and over this was put a covering of slough grass. On top of the slough grass went a couple of heavy layers of sod. That was a dugout, and that was the home common to this section of Minnesota in the early days." (Interview, *Granite Falls Tribune,* February 24, 1949.)

In 1895 a dugout of this description was still in use (for storage purposes) on the farm of Frank E. Bentley, in Rosewood Township, Chippewa County. It was about nine feet wide and ten or twelve feet in length, and was entered by a low door set in a wooden frame in the earth, and led down by stone steps to a floor of packed earth. Ventilation was supplied by the door and the chimney, and it was as nearly weather tight as anything could be.

"The sod house" according to Rose, "was a little more pretentious and was all above ground. It was built of sods cut from the prairie, laid much the same as stones. The roof consisted of a rough frame of poles and a small window." (History of Yellow Medicine County.)

The early settlers found an abundance of fruit, nuts, berries and flowers which have since vanished entirely from the scene—wild plums and wild grapes, strawberries, gooseberries, chokecherries, huckleberries, hazel nuts, June berries; deep pink and yellow flowers resembling phlox, red prairie lilies and tiny blue grass flowers. The dandelion was not native to the country; it was imported by the settlers to furnish the "greens" for their tables. In the blooming season the dugouts could scarcely be distinguished in the vast expanse of grass and flowers.

Yellow Medicine was the first townsite to be platted. It was surveyed by George E. Olds and platted by John Winter in 1868. It was located on the south bank of the Yellow Medicine River on a part of what is now the Northeast Quarter

of the Northeast Quarter of Section 31 and the Northwest Quarter of the Northwest Quarter of Section 32 of the fractional Sioux Agency Township. In the same year Robert H. Miller and T. Prentice Hill came to the county in search of possible water power sites, and filed on claims adjacent to Granite Falls. These claims were passed on to Henry Hill and Orange S. Miller, who platted the townsite of Granite Falls and built the first houses there; Hill in East Granite Falls, and Miller on the west bank of the river. The house built by Henry Hill eventually came to be the first hospital in the city of Granite Falls.

The first townships were organized while Yellow Medicine was still a part of Redwood County. In 1866, the Redwood County Board set off Yellow Medicine Township (of which Sioux Agency was a part), then Ree Township (later renamed Normania), Sannes (Sandnes) and Stony Run.

The inhabitants of these townships joined with new settlers in the western part of the county to agitate for the creation of new political units, although the population of the area was still small and scattered. A petition was circulated for the separation and creation of Yellow Medicine and Lac qui Parle Counties out of the western portion of Redwood, and this resulted in an act passed by the legislature and duly ratified by the voters in November, 1871.

The first county commissioners were John Winter, Ole O. Lende, and Leonard Hazelden, and they met for their first Board meeting on January 1, 1872, in a small brick building in Yellow Medicine City. The principal business transacted, according to the minutes, was the relief of the needy. The Board authorized payments totalling $190.00 to four individuals, and the expenditure of $25.00 "under the supervision of Commissioner Leonard Hazelden" for the benefit of one Maria Oleson who was "destitute of the necessaries of life."

Yellow Medicine City was designated as the County seat, for it was the largest of the settlements. But the choice was not considered a permanent one, and the villages began to compete for the honor in good natured rivalry. Governor Horace Austin and Park Worden owned a likely location at Minnesota Falls and there they at once platted a townsite. Water power could be developed there as well as at Granite Falls, and it had the further advantage of being "head of navigation," for steamboats then ascended the Minnesota and often touched at Minnesota Falls. By 1873 this village had stores, a flour mill, a saw mill, a blacksmith shop, a law office and several saloons, and a pontoon bridge to give access to the north bank of the river.

At Granite Falls Henry Hill was offering a free lot to anyone who would build and settle on it, and making plans for a dam at the falls and a flour mill. A ferry was put in operation on the river below the falls, and wagons loaded with wheat grown in the county converged at this point. While awaiting passage across the river they would form into caravans for the long journey to the nearest markets, each many days distant by horse and ox team. A trip to market and back required about a week's time. Food was usually taken along, and the nights were spent in the open. For several years New Ulm and New London were the nearest railheads.

During the early years mail was brought to the various post offices which served the scattered inhabitants by stage from Redwood Falls. The stage stopped first at Yellow Medicine City, then at Vineland, Stavanger, and on to Marshall. Later it was brought from Willmar to Granite Falls, then Vineland, Stavanger, Marshall, and Redwood Falls. Sometimes the stage would bring passengers also. Arrival of the mail was the event of the day, as described in the *Granite Falls Tribune:*

"We recall the time, years ago, when the post office was kept across the river. The few settlers here then looked anxiously for the mail to come down the hill on its return trip from Willmar. When the team was spied a small boy was despatched to bring the mail over from the Post Office after its delivery. It would consist perhaps of a half dozen papers and a letter or two. The office was kept in the store run by Mr. George Daniels. There were perhaps a dozen boxes marked alphabetically, and the caller had only to reach around to get his mail. The postmaster was paid something like $12.00 a year. No massive vault and iron safe was required to secure the money and postage stamps; a cigar box was quite sufficient."

Railroad lines were now reaching into the state, but progress was slow, and often the work was unnecessarily delayed. The Hastings and Dakota railroad completed its line to Glencoe in 1873. In the same year the Winona & St. Peter pushed its way as far north as John Swenson's little claim shanty store which stood on the present site of Canby. For some time John Swenson had a post-office at that point, and he had given it the name of Canby in honor of General E. R. S. Canby who was killed in the west while attempting to negotiate peace with Indian tribes. Although the line was completed no service was begun until 1876.

Settlers were steadily arriving. They came on trains to the nearest railhead with stock and household goods, then went on foot or by team to the point of settlement; or they came from the East and South in covered wagons, or other conveyances, even on foot. Norwegians had come into the county as early as 1866, but the real wave of Norwegian immigration did not begin until 1870. Then they came, wave after wave, until the nationality outnumbered all others. In 1880 there were more than 2,000 Norwegians and only 198 Germans among the foreign born.

Among the new settlers attracted to the county were two members of the medical profession, Dr. E. N. Falk and Dr. William M. Stratton, who came to Minnesota Falls in 1873. Dr. Stratton came from Ortonville where he had begun his medical practice shortly after graduation from college. Of Dr. Falk very little is known. Both doctors were graduate pharmacists and soon collaborated in establishing a drug business in connection with their practice. And to help promote the interests of Minnesota Falls in its campaign for the county seat honor they also founded the first newspaper in the county, the *Minnesota Sentinel.*

A few copies of this paper are still in the files of the Clerk of Court of Yellow Medicine County. It was a six-column folio, the two outside pages printed locally and the inside pages of patent "filler." Some of the local advertisements are in the Norwegian language, indicating the extent of the Norwegian penetration in this remote region. The first issue appeared October 1, 1874.

In these papers we find professional cards of Dr. Stratton, Dr. Falk, the lawyers, Gorham Powers, W. E. Cook and C. A. Shannon. It is from this source that we also learn of a doctor at Granite Falls, Dr. N. M. Smith, although this title is not given him in any issue. He is simply referred to as N. M. Smith. According to Rose's History Dr. N. M. Smith lived in East Granite Falls in 1873; in 1874 a drawing shows his house in West Granite Falls about where Third Street now intersects Ninth Avenue (the Stoppe residence).

Dr. Smith was engaged in a controversy with the *Granite Rock,* first newspaper to be established in Granite Falls. The *Granite Rock* had printed comments upon Dr. Smith's methods which he considered libelous, and promptly had Editor Hogue clapped into jail. The editor succeeded in posting bond, and retained W. E. Cook for counsel. The case was scheduled for trial before the justice in Minnesota Falls, in the week of August 7, 1875. The following account of the trial is taken from the *Minnesota Sentinel* of August 10, 1875:

As announced in the *Sentinel* last week, the trial of Smith against Hogue for libel took place in our Justice Court Thursday. The defense had a number of witnesses sworn to substantiate the statements made by the Rock in relation to N. M. Smith. They all seemed to have "cause to mourn" that they had ever beheld the face of the plaintiff. The testimony of the defense all seemed to verify the truthfulness of the song of the Immortal Burns that "man was made to mourn." Two physicians were called as expert witnesses to define the general acceptation of the term "unprincipled quack," but the attorneys for the plaintiff objecting, and being sustained by the court, it was determined to let that matter rest with Bovier, which relived (sic) the experts of the terrible necessity of defining quackery. They were next interrogated in regard to what they knew about "tonka beans," which was one of the main figure heads of the trial. The impression prevailed after they were duely (sic) examined that they were more conversant with the properties of navy beans. Mr. M. Gould, the druggist at Granite Falls, was brought to the witness stand to identify some prescriptions in his files that were written by the plaintiff, which were turned over to the expert witnesses. We believe the doctors were united in their opinion that they were not written according to "Hoyle" or "Gunter." One of the witnesses was called to the stand to testify to the competence of Mr. Gould as a druggist, but we believe the attorneys recalled that Gould run the "Reliable Drug Store" at Granite Falls, therefore it was not necessary for the expert to testify to his reliability as a druggist. The examination ended here, when the attorneys argued the case."

In the September following the trial the *Granite Rock* was sold at Sheriff's sale, and was succeeded by the *Granite Falls Journal* which purchased its stock and equipment but disclaimed all liability for the *Rock's* debts or policies. In the files of this paper are found professional cards of Dr. N. M. Smith, Eclectic Physician, who "will furnish all remedies which he prescribes."

In 1874 Granite Falls became the county seat by virtue of a legislative act which was duly ratified by the voters. Henry Hill donated a site, and the citizens raised enough money to build the new Court House, a building now in use on Tenth Avenue as a dwelling. To make doubly sure this effort was not in vain some Granite Falls partisans seized the county records and hid them until such time as the transfer could be made. The building and grounds were formally approved and accepted by the County Board in March, 1876. The Board also decided upon a levy of $600 for the poor fund, and provided that there should be no parties or dancing in the new court house.

Dr. Cyrus P. Fuller was the next doctor to locate in the county, and he opened offices in Granite Falls in 1877, "1 door south of drug store." He was also an experienced druggist, having operated a drug store at Hastings, Minnesota, both before and after taking medical training. In March, 1877, he was appointed the first County Physician, and in December his work won him this accolade from the local bard: *(Granite Falls Tribune,* December, 1887, reprint from issue of December, 1877).

"Dr. C. P. Fuller next we find,
And his medicines are pure,
If administered as ordered
They never fail to cure.

And Dr. Fuller as you all know
Is a blessing in our town,
No matter what your suffering from
He says "I'll make you sound."

To extract a tooth, trepan a skull,
Or set your limbs in motion,
I've heard it said he'd do it well
And use no sleeping potion."

The reference to a sleeping potion is interesting, in view of the number of cases of drug addiction found in these years.

The hopes of the citizens of Minnesota Falls for the future of that settlement were blasted both by the designation of a rival city as the county seat and by the failure of the Hastings and Dakota Railroad to build its line to that point. By 1878 the railroad line was completed to Granite Falls, and the first train rumbled over it in the late summer. Among the citizens who deserted Minnesota Falls for the more promising county seat town was Dr. William M. Stratton. He went into partnership there with Dr. C. P. Fuller, as appears from accounts filed against the estate after Dr. Fuller's death, on August 17, 1879, of blood poisoning. These accounts are for drugs and for livery hire for the two doctors and are supported by the affidavit of Marion Gould that they were partners.

Another doctor who located in Granite Falls in 1877 was Dr. Henry G. Townsend who opened offices in his home "opposite E. J. Fitch's Hotel" in East Granite Falls. He was a homeopathic "physician, surgeon, and obstetrician" who promised "special attention given to cronice (sic) diseases and diseases of women and children." After five years in Granite Falls he removed to Canby where he had an office "1 door south of P.O." and "will hold himself in readiness to attend calls at all hours, night and day." He also practiced in small settlements west and south of Canby.

At that time the medical profession was already well represented in Canby, with Dr. M. G. McLean and Dr. J. T. Billington in residence. Dr. McLean is a shadowy figure, for only a few items remain to show his existence; but Dr. Billington was in and out of County for many years, and is amply documented both by records and in the recollections of descendants now living in Canby and others who knew him. In 1879 Canby is reported as having a population of 110 people and twenty-two buildings.

The seventies were years of hardship in the county. A most disastrous prairie fire destroyed crops and homes in 1872, and the winter that followed was one of extreme severity. It was in that winter that Albert B. Sweet (later Dr. Albert B. Sweet of Hanley Falls) teaching school in Brown County, saved the lives of his pupils during the two days they were marooned in the school house by the great blizzard. The crops planted that spring were devoured, just before harvest, by clouds of grasshoppers which destroyed every vestige of vegetation over a wide area. This disaster was repeated in 1874 and 1875. The worst infestation was in 1876 when practically all the crops in the county were destroyed and the people were in such poverty that public aid was furnished them from state funds. In March, 1877, the County Board offered "premiums" for the best grasshopper-catching machines—first premium $40, second premium $20, third $10, all machines to be ready by May 4. Prizewinners were to permit the use of their designs free of charge by other settlers. The inventiveness of the settlers was not equal to the occasion, however; the machines offered were considered of doubtful value, and so the "premiums" were reduced to $15, for Henry Homme, the first prize winner, $10 to Anton Haroldson, and $5 to Charles Mooney.

During the grasshopper years the population of the county declined as many discouraged settlers gave up their lands and left the country. But in 1877 nature's splendid balance-and-check system came into operation; a tiny red parasite appeared to feed upon the grasshopper eggs, and the damage to the 1877 crop was light. The faith of the settlers in their new land had been sorely tried, but 1877 was the last of the "grasshopper years."

Death records of the county show that in 1879, and 1880 and 1881, diphtheria

was prevalent in the eastern part of the county. They also seem to bear out Dr. Billington's statement that "Canby is the healthiest place I have even been in," for it escaped the epidemics of diphtheria, smallpox, and other serious communicable diseases from which the population of the eastern portion of the county suffered.

In 1879, Dr. Florado H. Wellcome settled in Granite Falls. With his very attractive wife he spent the summer in the home of J. S. Pound in East Granite Falls. In 1880 his brother-in-law, Dr. Franklin Judson Cressy, came from Howard Lake to open offices in the Neste building. During the epidemics of those years the doctors were busy night and day, and became well established in the community.

The townsite of Canby had been platted by the railroad in 1876, and that part of the county was attracting new settlers.

Dr. Herman E. Farnsworth, a young man of twenty-three years who had just finished his medical training, settled in Canby about 1880. At first he was in partnership with Dr. M. G. McLean. In 1881, Dr. Farnsworth was called to attend Michael J. Dowling, one of the victims of the great storm of October 15, 1880.

This storm was one of the severest and most disastrous ever to strike the area. It began after weeks of mild fall weather, on a day which dawned mild and sunny. People went to town, stock ranged the fields, and winter seemed many weeks away. In the afternoon the temperature began to drop and the snow was soon falling in thick, clinging flakes that covered all objects and blotted out all distances. The sky seemed to close in upon the earth like a great smothering cup. The wind came up in furious assault and soon a storm of blizzard proportions was under way.

On that day Michael J. Dowling, a homeless lad of fourteen who was working as a farmhand near Canby, went to town. In the afternoon he arranged for a ride home with two men who would be driving his way. When the party set out the two men were on the wagon seat and the boy in the wagon box behind. Before long the men found the storm so blinding that they decided to let the horses have their heads and find their own way home; the eager animals were soon making a beeline for home in complete disregard of the comfort of those riding in the wagon. As the wagon bounced over plowed fields in this headlong flight young Dowling was thrown out, and the men, a little befuddled with the day's round of sociability in town, did not notice that he was gone until they reached home.

Left alone upon the prairie in the blinding storm Dowling wandered for hours in search of shelter. Finally he burrowed into a strawstack. When the storm abated two days later he crawled out and made his way to a farmhouse where it was found that his limbs were badly frozen.

Dr. Farnsworth of Canby and Dr. Andrews of Marshall found it necessary to amputate both legs of the boy above the knees, the left arm at the wrist, and nearly all the fingers of the right hand. The boy made a remarkable recovery. The story of his triumph over his handicap is too well known to need repeating; with county aid he completed his elementary education, worked his way unassisted (except for the first two terms) at Carleton College and became successively a teacher, editor, banker, and member of the State Legislature. The school for crippled children bears his name, the Michael J. Dowling school.

The snow that fell in October, 1880, was the first of many great snowfalls of that winter. Farms were isolated for months at a time; railroad lines into the county were blocked for six weeks; food and fuel ran low. Many a farm family subsisted on grain ground in the kitchen coffee mill. Even the newspapers suffered; they ran out of paper, and so printed issues on wallpaper or even "tea

paper." The townspeople of Canby were given permission to dig up the railroad fence for fuel in the emergency.

When the snows melted in the spring there were floods as all the rivers rose to unprecedented heights. The townsite of Minnesota Falls was entirely inundated, and many of its buildings were swept away or wrecked. Millrace and dam were destroyed, and all hopes for a permanent settlement at that place were abandoned.

In the summer of 1881 another kind of disaster struck Granite Falls when an epidemic of smallpox swept the town. The disease was prevalent in the state in that year, and it was brought to Granite Falls by a woman who became ill on the train and stopped off at Granite Falls. She was guided by Harmon A. Baxter, a local man, to the Saint Paul Hotel, a hostelry which then stood on Baldwin Avenue in East Granite Falls. The stranger's illness turned out to be smallpox. The disease spread rapidly through the hotel and through the town. Mr. Baxter and members of his family were stricken and died of it. The city authorities hastened to provide a pest house, choosing for the purpose an old log house which had been vacant in East Granite Falls for several years. This house was moved upon the hill overlooking the town; then the question arose as to who would take charge of it. There was but one volunteer for this job—a big, black-bearded veteran of the Civil War by the name of Berg who was a sort of town roustabout. He offered to take charge of the pest house and its patients at no cost to the city, provided the authorities would furnish him with a quart of whiskey a day. So the fifteen patients at the Saint Paul House were moved up to the pest house with that understanding. Whatever may be said as to the efficacy of whiskey in the treatment of smallpox, Berg at least was successful with it, for all but one of his patients came safely through to recovery.

Although the death register shows only three deaths from this epidemic, there were many others, particularly in East Granite Falls, which may have been recorded in Chippewa county. Mr. Fred Gillingham who lived in that part of town at the time remembers how the wagon went about the streets at night, like the tumbrils of old, gathering up the dead; and how as they heard its noisy passage the people would waken and say, "someone else is dead of the smallpox." Burials were made without ceremony outside the cemetery fence. The ten graves that remain, forgotten and untended, are mute reminders of that dreadful summer.

In 1881, Dr. Farnsworth was appointed county physician for the west end of the county, beginning the system of dividing the county into medical districts. The Commissioners also tried to shift some of the burden of caring for the poor upon the shoulders of the county physicians, ruling that it should be their duty to find suitable boarding places for the county sick and disabled, at the same time to "use his best endeavors to save the county expense." As one of these "disabled," Michael J. Dowling was shifted from home to home. The commissioners were men who took seriously their responsibility as guardians of the public purse and disbursers of its largesse. They tried to get value for every dollar spent. When Michael J. Dowling was ready for artificial limbs the commissioners agreed to pay $100 toward the purchase of two legs, the rest to be raised by private subscription. In this they relented somewhat, however, finally agreeing to pay an amount sufficient to get two artificial legs and one arm, after which Dowling was to "paint the Court House fence." When some years later Dowling again appeared before the Board to ask help in getting new legs the Board agreed at once, his case "being so well presented."

In these years Dr. Stratton was taking an active part in civic affairs. He had been a member of the first town council of Granite Falls, and then president of the council, and in 1881, he was County Physician.

In 1883, Dr. Alexander C. Dockstader came to Granite Falls and opened his office "over the bank" (Granite Falls Bank). His professional card specified office hours from 8 to 9 a.m., and from 1 to 4 p.m., and he lived in the house which is now 120 Ninth Avenue, known as the Foster house. He was an ardent baseball fan, fond of hunting, and both he and Mrs. Dockstader were musical, which made them distinctly an asset to the community.

In the same year Dr. Henry Townsend died of a heart attack and Dr. Farnsworth died of "inflammation of the bowels" at the age of twenty-seven years.

As long as railroad lines were under construction the settlements in the county were deluged with laborers in search of recreation. In spite of the ruling of the County Board that business places and saloons should close at midnights and on Sundays, many saloons simply darkened the front windows and continued in business. This was true both in Granite Falls and Canby, where noisy revelry and street fighting went on through the night, and it was considered unsafe for any citizen to be on the street after dark. After the departure of this transient population the towns became more law-abiding, although the local papers frequently commented on the "disgraceful conduct" of named citizens. Canby went through a period of being a "wide open town" where such desperadoes as "Black Jack" and "Texas Jack" and his gang sought refuge from the authorities on their trail.

Where the Granite Falls press inveighed against the evils of strong drink the *Canby News* carried on another kind of campaign. It decried the indiscriminate purchase and sale of dairy (home made) butter in the local market and throughout the state.

The farm wife who made more butter than the family could use would bring in her surplus, along with her basket of eggs, to market. If the butter tasted all right it was considered good butter, and both merchant and customers were glad to get it. Little thought was given by most people to the conditions under which the butter was made or how it was made. Milk was brought from the barns and placed in shallow milk pans to cool. When the cream had risen to the top it was skimmed off and set aside until enough cream had accumulated, and it was then churned into butter. Undoubtedly some of the best butter ever made was produced in this manner, but it was not one which insured the purchaser a quality product in every instance. Probably the story told by the *Canby News* of the woman who brought her butter to market wrapped in her head shawl was pure fabrication, but it could have been true.

It was also the custom for the merchant to turn over butter which was unfit for sale to an agent for a renovating company. He bought it and shipped it out for renovation.

In 1885 the Legislature passed an act prohibiting the sale of "unhealthy or adulterated dairy products," but this act was designed to cope primarily with the threat to the dairy industry posed by the many small oleomargarine manufacturing plants that had sprung up in the state. Without regulation these were a health hazard, and as a result of the enforcement of this law the manufacture and consumption of oleomargarine in the state fell off to a fraction of what it had been.

The *Canby News* also demanded meat inspection. Certainly the demand for beef in the local market must have fallen off when the *News* commented that beef ought to be plentiful and cheap since many cattle were dying of diseases in the south. The *News* repeatedly demanded the appointment of a meat inspector "as required by the meat inspection act."

Farmers could be sure of meat of good quality for animals were slaughtered in the fall and the meat preserved in various ways. It could be hung and frozen, if

the weather permitted. Beef was dried or corned, pork "put down" in brine or cured for hams and bacon, made into sausage, head cheese, and other variety meats. The refrigeration offered by the oat bin was not to be overlooked, for meat products such as sausage would keep safely when buried under bushels of cold oats or wheat.

Nearly every village had a slaughter house and a butcher who could be relied upon to keep the townspeople supplied with meat, but here again quality depended upon the experience, reliability and skill of the butcher. The importance of care in the handling of meats was impressed on the residents of the western part of the county when twenty-four men of Minneota were stricken with trichinosis. Doctors and druggists were called from Canby to help out in the emergency. Dr. Billington's investigation revealed that the stricken men had repaired to the butcher shop to feast on ham after a pleasant evening spent in the tavern across the street.

The local press also devoted much space to the evils of the liquor habit. Liquor licenses were issued by the County Board beginning with 1876, when the license fee was fixed at $10. Liquor seems to have been handled much as any other merchandise, simply sold across the counter in both drug and general stores, for at its meeting on December 10, 1876, the Board rulled that "O. G. Veldey, William Stratton, and K. E. Neste" be notified to take out licenses for "retailing liquor" or "suffer the penalty." Even the smallest village boasted several saloons.

In the winter months when each village was in a measure isolated from the others, and from the outside world, entertainment depended upon the activity and ingenuity of its clubs and societies. There were debating societies, musical clubs, social clubs, and forums for the discussion or study of particular subjects in almost every settlement. The *Granite Falls Tribune* of October 5, 1886, mentions the Oxford League, the Scandinavian Debating Club, the Chautauqua Reading Circle, the Shakespeare Club, and the Young Men's Club, all committed to raising funds for a public reading room. Canby had a literary society which met every week, year after year, and presented programs of music, declamations, and debates. Hanley Falls had both a Literary Society and a Dancing Club, while Clarkfield had musical organizations and other activities.

Doctors and their wives were naturally prominent and in much demand at social affairs and in organizations of all kinds. Many of them had special talents. Dr. and Mrs. Dockstader were often the soloists of the musical club programs. Mrs. Cressy and Mrs. Fuller were active members of the Hesperian Club which studied Shakespeare's plays, and acted out parts of them for the public, although there were only eight members, all women. Dr. Chambers was often soloist on the Canby Literary Society programs and Mrs. Chambers obliged by giving readings or "declamations." It was a leisurely time; the small settlements offered little in the way of diversion and labor of every kind was cheap and plentiful. Nearly every household could have a maid who worked long hours for small wages. Lacking amusement, the people learned to amuse themselves. They read books, they played band instruments, they took part in whatever entertainment the community afforded, either as participants or spectators. It was not unusual to hire a hall for a social function and secure the services of the local band or orchestra for the entertainment of guests. For the men especially, there were billiards, and during the coldest months there were chess games going in nearly every public place.

From the earliest years great interest was shown in providing schools. The children of the first settlers in Granite Falls attended school in a log house about a mile west of the village; a building also used for church on Sundays. The first term of school in the city itself was taught in 1873 in East Granite Falls where a school house was built at a cost of $1500. In 1879 a new school district No. 21

was organized to include the part of Granite Falls which lay in Yellow Medicine County, and Dr. Stratton was a member of the first board of education which chose the site and built the first school building on the present school grounds. The first school building was ready for use in January 1880, and in 1889, an addition was built for a high school.

Similarly, the first school in Canby was a one-room school taught by Andrew Ouverson in 1877. The next school building was a frame store building at the corner of St. Olaf and Second Streets. In 1880 a two-room, two-story building was erected which was used until about 1895 when a large new school house costing $15,000 was erected.

One-room schoolhouses dotted the prairie as the population increased and moved westward. The school was the center of community life in the country, a convenient voting place, a meeting place for the town board, and a speakers' forum. The school teacher "boarded around" when tax moneys were insufficient for all school expenses, or lived at the most convenient home. The teacher was an important personage in the community.

The first public library in the county was founded in 1877 when the Granite Falls Library Association organized to provide a free reading room and circulating library. A few books were purchased and placed in one of the stores. It was moved around from place to place until finally room was found for it in the city hall.

Churches were organized in the county at an early date, beginning with the Methodist which in 1871 used the old log school house, or Mr. Fitch's bar room, for its meetings. Next in the field were the Congregationalists who built the first church building in the county; in 1876 the Norwegian Evangelical Lutheran, then the Baptist in 1881. Services for Catholics were held in homes from 1872 on. In Canby the first church was the Lutheran St. Stephan's, in 1876, followed by the Presbyterian in 1882, St. Paul's Lutheran in 1879, the Methodist Episcopal in 1886, and the Catholic in 1896.

In 1884 the Minneapolis and St. Louis Railroad entered the county at its southeastern corner, and platted as it progressed westward the townsites of Echo, Wood Lake, Hanley, Hazel Run and Clarkfield. In the western part of the county the Northwestern Railroad platted Porter and Burr, and a branch of the Great Northern came from the south to pass through Hanley and Granite Falls. Elevators for storage of wheat began to appear on the railroad right of ways, and through them passed the huge wheat crops grown in the county. Although other crops were raised, wheat was the cash crop on which the farmer depended year after year. The new railroad lines meant shorter trips to market for the farmer and added to the general prosperity.

The first of the new settlements on the Minneapolis and St. Louis to be chosen for a field of medical practice was Hanley, later called Hanley Falls. To this tiny village of less than a hundred souls came Dr. Albert B. Sweet in 1885. Dr. Sweet had been a pharmacist in Marshall and had not completed his medical training when he came to Hanley to open the first drug store there. A cousin, F. H. Sweet, assisted him in the drug business while he continued his work at the University and graduated in 1885. Dr. Sweet practiced in Hanley until 1891.

(To be continued in the August issue)

President's Letter

SUPPORT EQUALS IMPROVEMENT

The very core of medical education today is the economic structure of the individual medical school. Granted that considerable dependence is placed on the calibre of administrators, department heads and instructors, but without the proper financial support, medical education is to be found wanting.

Throughout the nation today, medical schools have found themselves in a financial dilemma; rising costs for construction and instruction, coupled with the skyrocketing demand to turn out more doctors, has forced many educational institutions to operate on limited budgets, and, as a consequence, seriously threatened the high standards of medical education previously developed.

Federal aid to medical education has been proposed as a partial solution to this problem.

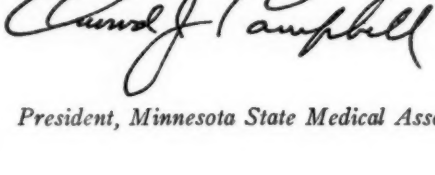
But the medical profession foresaw the real danger of too much federal control entering into such a program, and sought to do something constructive to aid medical education. Thus, the American Medical Education Foundation was created, with the express purpose of collecting funds to be specificially used to aid medical schools. The American Medical Association, since the fund's inception, has contributed heavily as an organization to this worthy foundation.

In spite of this generous giving, the funds for medical education have not piled up as quickly as the need has developed. Only 11,000 individual doctors have contributed to the American Medical Education Foundation since the first of the year, and the aggregate funds amount to something over one million dollars.

This amount, divided among the nation's seventy-nine medical schools, obviously cannot begin to meet the need, in the light of the cost-of-living factors quoted above.

It must be evident to every physican that an individual effort is urgently needed. At the present time, doctors of Minnesota are being asked to consider this matter seriously. Letters have been sent to individual Association members asking for their immediate financial assistance. You, as one of those who has benefited from the high standards of medical education, have an obligation to lend your firm support to insure even higher standards for future practitioners.

We have a great challenge in this matter; it is squarely up to the medical profession itself to invest in improved medical education through active support of our medical schools.



President, Minnesota State Medical Association

Editorial

CARL B. DRAKE, M.D., *Editor;* GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

THE INCREASING PERCENTAGE OF BACTERIAL-RESISTANT STRAINS TO ANTIBIOTICS

THE PRESENCE of Sir Alexander Fleming at the Centenary meeting of St. Joseph's Hospital in St. Paul, May 16 and 17, added further publicity to penicillin, of which he was the discoverer. His recognition of the significance of the effect of a chance contamination of a culture of staphylococci by a mold led eventually to the development first of penicillin and then the ever mounting list of other antibiotics. The therapeutic value of the antibiotics is incalculable and too much honor cannot be heaped upon the individual who had the intelligence and imagination necessary to develop the first antibiotic.

As is the case with many new products, several years of hard work were needed before penicillin became available for clinical use. Dr. Fleming's first observation and isolation of a pure culture of the fungus, *Penicillium notatum,* was accomplished in September, 1928. His first article on the subject appeared in the *British Journal of Experimental Pathology* in 1929. Cultures of *Penicillium notatum* were distributed to many workers in other countries but it took ten years before Florey and his associates at Oxford effected the concentration and purification of the active principle of the fungus, named, by Dr. Fleming, penicillin. This original culture of the fungus was the source of all penicillin until as late as 1943.

The remarkable therapeutic value of penicillin stimulated the search on the part of a number of commercial houses for other antibiotics which might be better than penicillin and might be effective against other bacteria. The success in the development of other antibiotics has been remarkable but it is interesting to note that the original antibiotic, penicillin, has proven the least toxic of them all, the cheapest, and the only antibiotic not patented.

It is strange that the first demonstration of the properties of the antibiotics as well as the sulfas was in connection with the staphylococcus. The first clinical demonstration of the value of a sulfa (prontosil) was in the case of a ten-month-old infant desperately sick from staphylococcus septecemia in which recovery resulted. The case was reported in 1933 in Germany by Foerster. Likewise the first observation of the effect of the mould—*Penicillium notatum*—on bacterial growth was on a culture of staphylococci. The early enthusiasm over the efficacy of both drugs in the treatment of staphylococcic infections had to be modified in view of later experience.

The sulfas did not prove to be the answer for the treatment of staphylococcic septicemia. In the pre-antibiotic period the mortality from this disease was over 80 per cent—according to one report.[1] With the advent of penicillin the mortality from staphylococcic septicemia in one series of twenty-eight patients reported at the University of Minnesota hospitals was only 28 per cent.

Since this period the strange phenomenon of the increase in the percentage of antibiotic-resistant strains of bacteria has been reported at various localities.[1] By 1948-49 it was found at the University of Minnesota hospitals that the number of penicillin-resistant strains of staphylococci were on the increase. Whereas the number of failures due to infection with penicillin-resistant staphylococci were at first rather insignificant, by 1950 over 50 per cent of some 104 strains of staphylococci were found to be resistant. Very few of the strains tested were found to be resistant to the other antibiotics such as Aureomycin, Terramycin and Chloramphenicol. Thus these antibiotics could be used for infections due to penicillin-resistant staphylococci. In 1952 another group of 100 strains of staphylococci were tested *in vitro* and 60 per cent were found to be penicillin resistant and a similar percentage resistant to streptomycin. In this same series it was rather startling to discover that 40 per cent of the strains were resistant to Aureomycin and Terramycin. Fewer strains were

1. Wise, Robert I., and Spink, Wesley W.: The Management of Staphylococcic disease. Bull. U. of Minn. Hosp. and Minn. Med. Found., 24:640 (June 12) 1953.

found to be resistant to Chloramphenicol and none to Bacitracin, Erythromycin and Carbomycin. Similar experience has been reported from the Mayo Clinic, the Boston City Hospital and from Sydney, Australia.

Just as the percentage of strains of staphylococci resistant to penicillin has been increasing since the use of the drug has become widespread, a similar increase in the percentage of strains resistant to other antibiotics has been taking place.

Strains of tubercle bacilli have been found resistant to streptomycin for a number of years. Some strains have been found resistant and others sensitive to streptomycin in the same patient and even in the same sputum specimen and the administration of PAS has been found to cause a strain of tubercle bacillus to become more sensitive to streptomycin.

There is evidence that there is a similar though less marked increase in the percentage of other bacteria resistant to the antibiotics.

The opinion as to the reason for this increase in percentage of strains sensitive to the antibiotics may not be unanimous but it seems reasonable to believe that the antibiotics destroy the sensitive strains and allow the resistant ones to cause morbidity. This seems more reasonable than that individual strains of bacteria actually develop resistance to the antibiotics. One recent survey[1] has shown that 54.5 per cent of hospital personnel were nasal carriers of Staphylococcus pyogenes, 80 per cent of the strains being penicillin-resistant. Cross infection with resistant strains can present treacherous problems for the hospitals.

In spite of the accomplishments of the wonder drugs—the antibiotics—which have been outstanding, the percentage of cures produced in a variety of infections seems to be diminishing. In a recent report[1] of twenty-two patients with staphylococcic sepsis, 54 per cent died and the outlook for three additional patients was poor. This was the result following the use of a number of different antibiotics and approximated the mortality in pre-antibiotic days.

Penicillin and also other antibiotics have been prescribed for a great variety of infections and doubtless for a large number for which they were not indicated. If our conception of antibiotic-resistance is correct, however, we fail to see how this use, though extravagant, can have proved detrimental to the human race.

"WATCH IT, DOC"

OUR ATTENTION has been called to an editorial which appeared in the June 22 number of *Life*, entitled "Watch It, Doc." The editorial is insulting to the profession, particularly to our AMA House of Delegates and the Medical Society of the County of New York. While the editorial is involved, it seems advisable that editorial comment be made to clarify the subject.

Admitting the wonderful advances in medical science announced at the AMA meeting held in New York in June, the editorial goes on to criticize the House of Delegates for seeming "to be against almost anything that threatens the profit of a doctor's private practice." As proof of this uncomplimentary criticism is cited the resolution passed by the House of Delegates branding the Federal regulation that provides free diagnostic services for crippled children as socialistic. That is all the evidence presented to back up the unkind criticism of the House of Delegates. The editor says the "public has become utterly weary and cynical from hearing the AMA snarl 'socialistic' at everything it doesn't completely approve of," and that the doctors do not know the difference between the terms "socialistic" and "social."

As a matter of fact, the terms "socialistic" and "social" have a variety of meanings in use and as defined in Webster's unabridged dictionary. However, when the term "socialistic" is used, it generally refers to collective or governmental ownership as developed by Karl Marx and as opposed to private ownership and management. The word "social" is used not only with the meaning of sociable but as pertaining to the welfare of human society, expecially of the lower-than-average income group, in such phrases as social service, social disease, et cetera. There should not be much room for difference of opinion as to where the line should be drawn between social services for the indigent and frankly socialistic governmental activities. It would seem that the ability of private industry to care for any need of the public should be the criterion as to whether socialistic governmental activity is necessary. Governmental activities which compete with private industry can be branded socialistic, and we have plenty of examples in our country today.

Now, the medical profession has shown itself conscious of the difference between the terms "socialistic" and "social," as ordinarily used. It

has been conscious of the need of governmental assistance in meeting certain medical needs of the low income group and has contributed its services, gratis, in many such fields. It has approved the support by city, county, and state of charity hospitals, sanatoria for the tuberculous and mentally ill and even hospitals for crippled children unable to afford private medical care. The treatment of a crippled child is likely to be so prolonged as to be beyond the financial ability of most citizens to meet. Governmental assistance along these lines may be termed social in contrast to socialistic.

Crippled children appeal particularly to the sympathy of all. They appealed to the sympathy of Dr. Arthur Gillette and impelled him to induce the legislature to establish in Saint Paul a state-supported hospital for crippled children which was subsequently called the Gillette Hospital. The medical profession has given generously of its services gratis or for a nominal fee to its inmates for the past forty years or more. In addition, the Shriners have established and supported several hospitals throughout the country—one in Minneapolis—for the free care of crippled children.

For a number of years, federal funds have been appropriated for the diagnosis of the disabilities of crippled children throughout the states. An important point as regards the appropriation is that bureaucratic regulations from the Children's Bureau require that no means test be used in the selection of beneficiaries and that a state which does not submit to these regulations can have no federal funds allocated. No difficulties have been encountered in the administration of this federal activity in Minnesota because of a local provision that children must be recommended by their private physicians for examination and diagnosis. Thus, there is no infringement on private practice in Minnesota. Provision of this federal supported activity, however, irrespective of ability to pay, places it in the socialistic category, the *Life* editors to the contrary notwithstanding.

We are constrained to mention at this point that the care of veterans' non-service-connected disabilities by the Veterans Administration is another example of socialism. The AMA House of Delegates, meeting in New York, took a stand in opposition to government care for non-service-connected disabilities, except in the case of the tuberculous and mentally ill. This was a realistic attitude for such care in most instances is not in competition with private practice. The veteran holds a soft spot in the heart of his fellow citizens and many believe that nothing is too good for him—even medical and dental care the rest of his life. With a large fraction of the male population included in the veterans group, government medical care for all disabilities of veterans would eventually disrupt private medical practice.

The *Life* editorial takes the Medical Society of the County of New York to task for its public relations in respect to its attitude toward the proposal by Herman J. Stichman, the State Commissioner of Housing in New York, to provide clinical facilities to Mt. Sinai Hospital in New York City in return for free medical care to certain tenants. The editorial goes on to state:

> "This spring, *New York Medicine*, official publication of the society, declared that the plan would 'closely resemble socialized medicine if it is put into effect.' The Chairman of its Committee on Medical Economics, a Park Avenue obstetrician, in declaring Stichman's plan 'Utopian,' added for publication in the *New York Times*: 'He said the doctors at the Clinic would make house calls. . . . I suppose he'd like to serve them breakfast in bed, too! By 'them,' the chairman meant the patients who might be too ill to be moved. His little joke must surely be one of the greatest of its type since Marie Antoinette said, 'Let them eat cake.'"

This uncomplimentary picture of the medical profession in New York, spread throughout the country in an editorial in *Life*, we now learn was based on a falsehood. What are the facts?

In brief, Herman J. Stichman, the State Commissioner of Housing, published in the *New York Medicine* of April 5 his proposal to provide space for a clinic in connection with the building of a huge low-cost dwelling project in New York City, known as Carver Houses, in exchange for free medical service to be provided by Mt. Sinai Hospital. Following the article was a critical analysis which concluded that the occupants of such dwellings were not indigents, that the best way to provide medical care for them would be through medical insurance available for the low income group and from private practitioners, any indigents in the dwellings to avail themselves of free medical clinics already in existence and available; that such a plan would constitute encroachment by a hospital on private practice and the use of tax funds for the benefit of private

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The Dean's Page

THE MEDICAL SCHOOL

Its Objectives and Organization

The Medical School of the University of Minnesota was established and is supported by the people of the state in order that they may have adèquate and competent medical services. Initially this involved only the education of general physicians. This is still the primary objective of the Medical School. However, the complexities of modern medical care and the rapid advances in medical science have forced the Medical School to accept other responsibilities. Prominent among these are the provision of graduate medical education for the training of specialists, continuation education for the benefit of physicians in practice, the conduct of medical research, the provision of specialized medical services to the patients of the University Hospitals and the training of auxiliary medical personnel such as nurses, medical technologists, x-ray technologists, physical therapists, occupational therapists, medical and psychiatric social workers, hospital dietitians, clinical psychologists, hospital administrators, and various categories of professional public health workers.

The Medical School was organized approximately sixty-five years ago with twenty-nine faculty members, all of whom earned their livelihood by private practice. Today the faculty consists of 171 full-time members and 459 part-time members of the rank of instructor and above. Full-time faculty members have predominated in basic science departments for many years. In the clinical departments, on the other hand, full-time teachers are a relatively recent development, initiated in this country approximately forty years ago by Johns Hopkins University. Today a few medical schools have their entire faculties, in clinical as well as basic science departments, on a full-time basis. Others depend for clinical teaching upon part-time practicing physicians. Still others, such as the University of Minnesota, have a nucleus of full-time staff members in the clinical departments but utilize in addition the services of many practicing physicians.

It is the intent of the University of Minnesota to continue upon this basis, believing that to conduct an adequate educational program a medical school needs some staff members in all departments who devote themselves exclusively to medical teaching and research, but that clinicians, who are meeting the day-to-day problems of the private practice of medicine, have a very real and important contribution to make to the teaching of medical students.

The location of the University of Minnesota Medical School on the campus with the rest of the University and in a large metropolitan center, is indeed a fortunate one. In this situation the Medical School benefits from the atmosphere and associations of a university campus and still has available the wealth and diversity of clinical material and the services of a splendid part-time staff that are available only in a large metropolitan center.

For purposes of administration, the Medical School is divided into the following departments: Anatomy, Bacteriology, Physiology, Physiological Chemistry, Pharmacology, Pathology, Medicine, Surgery, Obstetrics and Gynecology, Pediatrics, Ophthalmology and Otolaryngology, Psychiatry and Neurology, Radiology, Physical Medicine and Rehabilitation, and Continuation Medical Education.

Closely affiliated with the Medical School, as divisions of the College of Medical Sciences, are the following instructional units. School of Public Health, School of nursing, Course in Medical Technology, Course in Physical Therapy, Course in Occupational Therapy, and Course in X-Ray Technology.

In this series of articles, we will attempt to give brief pictures of the organization and activities of most of these departments of the Medical School and divisions of the College of Medical Sciences.

HAROLD S. DIEHL
Dean of Medical Sciences

Medical Economics

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

AMA DELEGATES MEET, DISCUSS, DEBATE PLAN

The 102nd Annual Session of the House of Delegates of the American Medical Association convened at the Waldorf-Astoria in New York City on June 1. Comparatively speaking, discussions were mild, with action seemingly watered down somewhat in view of what was expected to be fire works.

However, after thoroughly studying some of the measures adopted, it can be seen that the House took positive steps in decisions on many matters under consideration.

A certain amount of clarification came out of the discussion on treatment of non-service-connected disabilities by the Veterans' Administration. The House gave unanimous approval to a recommendation from its Reference Committee on Insurance and Medical Service, which recommendation was submitted as a substitute for eight different resolutions concerning this matter.

In approving this recommendation, the House actually re-adopted a resolution originally presented at the Denver, 1952, Interim Session:

"Your Committee recommends with respect to the provision of medical care and hospitalization benefits for veterans in Veterans Administration and other federal hospitals that new legislation be enacted limiting such care to the following two categories:

"(a) Veterans with peacetime or wartime service whose disabilities or diseases are service-incurred or aggravated, and

"(b) Within the limits of existing facilities to veterans with wartime service suffering from tuberculosis or psychiatric or neurological disorders of non-service-connected origin, who are unable to defray the expenses of necessary hospitalization.

"Your Committee recommends that the provision of medical care and hospitalization in Veterans Administration hospitals for the remaining groups of veterans with non-service-connected disabilities be discontinued and that the responsibility for the care of such veterans revert to the individual and the community, where it rightfully belongs."

Service-Connected Plan Okay

The reference committee report further stated that it was in full accord with the present program of medical treatment for veterans with service-connected disabilities:

"It is the belief of your committee that the medical profession must concern itself, not with the numbers of 'chiselers' in Veterans Administration hospitals nor with the efficacy of the Veterans Administration in the administration of enabling legislation, but rather with the broad question of whether such legislation is sound, whether the federal government should continue to engage in a gigantic medical care program in competition with private medical institutions and whether the ever-increasing cost of such a program is a proper burden to impose on the taxpayers of the country. A consideration of this problem must, of course, be predicated upon a concern for the health of the entire population and not just a particular segment."

Emphasize Ethics

Considering the eleven resolutions dealing with publicity on statements by official spokesmen of allied medical organizations, the House recommended no action, but firmly emphasized the supremacy of the American Medical Association's code of ethics to govern the entire profession. The reference committee's recommendation read as follows:

"The Principles of Medical Ethics as formulated, interpreted and applied by the American Medical Association must be considered the only fundamental and controlling application of ethics for the entire profession. Any statement relating to ethical matters by other organizations within the general profession of medicine, advances views of only a particular group and is without official sanction of the entire profession as represented by the American Medical Association."

The report also condemned generalized statements regarding ethics of physicians:

"Your reference committee believes that the harm done to the public and to the profession by the current articles which lower the confidence patients have in their doctors cannot be objectively evaluated. This highlights the

fact that, when individuals or groups without official status in the American Medical Association utter or publish ill-considered statements, the result too often is that the confidence of the public in the medical profession is placed in jeopardy."

While the committee reaffirmed its agreement with the right of free speech, it amplified its explanation of its action by stating,

"Broad generalizations, ill-advised and poorly prepared statements that often fail to convey the intended meaning, are most unfortunate and are to be deplored."

Critical comments which are destructive can serve no useful purpose, the report declared

"Your committee has the utmost confidence that the great majority of our members are entirely capable of avoiding these pitfalls without additional advice from this committee."

Osteopathy Discussed

One of the most controversial and prolonged discussions of the House session was action on the question of osteopathy. The final decision, after considerable heated and vigorous debate, was to postpone action until the annual meeting of 1954, thereby providing for further study by delegates and the individual state associations.

However, certain proposed principles were outlined for consideration with regard to the field of osteopathy and its relationship to the medical profession. Four points were presented by last year's Committee for the Study of Relations Between Osteopathy and Medicine, but these were not adopted by the House of Delegates:

1. That the House of Delegates declare that so little of the original concept of osteopathy remains that it does not classify medicine as currently taught in schools of osteopathy as the teaching of "cultist" healing.

2. That the House of Delegates state that pursuant to the objectives and responsibilities of the American Medical Association, which are to improve the health and medical care of the American people, it is the policy of the Association to encourage improvement in the undergraduate and postgraduate education of doctors of osteopathy.

3. That the House of Delegates declare that the relationship of doctors of medicine to doctors of osteopathy is a matter for determination by the state medical associations of the several states and that the state associations be requested to accept this responsibility.

4. That the Committee for the Study of Relations Between Osteopathy and Medicine or a similar committee be established as a continuing body.

The majority report of the reference committee felt that the committee's report was dealing with too controversial a subject to allow action without further study. It therefore recommended, and the House concurred, that the Committee be continued, that action be deferred until June, 1954, and that the House be prepared to answer then, the following questions:

1. Should modern osteopathy be classified as "cultist" healing?

2. Since the objectives of the American Medical Association include improvement in undergraduate and postgraduate education, should doctors of medicine teach in osteopathic schools?

3. Should the relationship of doctors of medicine to doctors of osteopathy be a matter for determination by the several state associations?

Next year's House of Delegates session in San Francisco will see decisive action on this important policy matter.

MORE SAVINGS, SPENDING REFLECT LIVING STANDARD RISE

Although most of the nation's substance has gone to defense programs for the past decade,

"the United States has given a practical demonstration of the dynamic effect of rising productivity in the way it has continued to lift the living standards of the man in the street."

This statement prefaces a recent report on the higher living standards in America, reported by the Insurance Economics Society of America in its publication, "Insurance Economics Surveys."

A rise in both incomes and savings are the main factors in the over-all rise in living standard. The report states:

"Over recent years, as the figures show, more Americans than ever before have enjoyed rising incomes, spent more for needs and wants, and saved more in life insurance and in other mediums of thrift."

Income increases are reported:

"Total personal income has increased in every year except one out of the last thirteen. The exception was in the brief recession of 1949, but even then the decline

was small. The 1952 total of personal income amounted to more than $268 billions, as against less than $73 billions in 1939, an increase of nearly fourfold."

Consumer spending has also shown an increase of considerable proportions:

"Consumer spending has increased in every year since 1939. There have, of course, been variations from year to year, reflecting such factors as the scarcity or abundance of goods, and the impact of changing domestic and international conditions on public psychology and individual buying impulses. Over all, however, the upward trend in personal spending has been uninterrupted from 1939 to date. Goods and services bought by the people in 1952, exceeded $216 billions, more than triple the pre-World War II figure."

The trend in personal savings has also climbed steadily, not only in amount, but in distribution. The report states that although savings have pursued a more zigzag course than either total income or consumer spending, they reached abnormally high levels during the last war, fell off for a few years thereafter as goods came into supply, and then moved steadily upward in the last five years.

"Last year's total of personal savings, as compiled by the Department of Commerce aggregated $18 billions, some six and one-half times the 1939 savings figure."

Distribution Rises, Too

There are 24 million more owners of life insurance today than there were at the beginning of the last war, the report states. The total of insurance in force is about two and one-half times as great.

Unemployment Decreases, Taxes Increase

Also, the trend toward higher living standards has entered the employment field. More than 9.5 million persons, which is over a sixth of the American working people, were jobless in 1939. The report states that this nation has had, by contrast, full employment in recent years.

The biggest gain of all has been found in the tax field. Here, personal taxes in 1952 totaled a record high of $34 billions, half as high again as the World War II peak and fourteen times greater than the 1939 total.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul 2, Minnesota

Julian F. DuBois, M.D., Secretary

BELGRADE, MINNESOTA, PHYSICIAN SENTENCED FOR GRAND LARCENY

Re. State of Minnesota vs. George F. Engstrom

On May 4, 1953, George F. Engstrom, M.D., fifty years of age, was sentenced by the Hon. Arthur A. Stewart, Judge of the District Court of Ramsey County, to a term of one year in the Ramsey County Jail. The Court stayed the execution of the sentence for a period of one year upon the defendant's good behavior. Dr. Engstrom had entered a plea of guilty on July 14, 1952, to an information charging him with the crime of grand larceny in the second degree. At that time the Court continued the matter to October 10, 1952, and then to May 4, 1953. The purpose of the continuance was to give Dr. Engstrom an opportunity to make restitution for money that he had wrongfully obtained from various insurance companies and others as the result of fictitious, fraudulent and excessive claims for remuneration for professional services.

At the time Dr. Engstrom appeared in Court to be sentenced, the Court was advised that Dr. Engstrom had made full and complete restitution and that his license to practice medicine had been suspended by the Minnesota State Board of Medical Examiners on February 14, 1953, for a period of three years. Judge Stewart stated that, in the Court's opinion, Dr. Engstrom was being sufficiently punished for his wrongdoing, particularly by being deprived of his license to practice medicine.

MINNEAPOLIS PHYSICIAN AND ACCOMPLICE SENTENCED FOR CRIMINAL ABORTION

Re. State of Minnesota vs. George F. Schmidt and Maryllyn M. Dinsmore.

On May 29, 1953, George F. Schmidt, M.D., seventy-two years of age, was sentenced by the Hon. William C. Larson, Judge of the District Court of Hennepin County, to a term of not to exceed four years in the State Prison at Stillwater for the crime of abortion. The Court ordered the sentence stayed and placed the defendant on probation for a period of three years. Dr. Schmidt at the time of his arrest on April 21, 1953, maintained an office for the practice of medicine at 2707 Nicollet Avenue, Minneapolis. Dr. Schmidt was also a deputy coroner of Hennepin County. On April 28, 1953, Dr. Schmidt entered a plea of guilty to an information charging him with the crime of abortion and stated to the Court that he received $50.00 for doing an abortion on a twenty-one-year-old married Minneapolis woman. Dr. Schmidt admitted that he had performed "about a dozen abortions" prior to the one that resulted in his arrest.

On May 28, 1953, Mrs. Maryllyn M. Dinsmore was sentenced by Judge Larson to a term of not to exceed three years in the Women's Reformatory at Shakopee for the crime of abortion. Mrs. Dinsmore was the "go-between" in arranging the abortion that was performed by Dr. Schmidt. Mrs. Dinsmore admitted that she received $250 for her services. Mrs. Dinsmore denied that she was involved in any other abortions except one

(Continued on Page 775)

Minneapolis Surgical Society

Meeting of December 4, 1952

The President, Hamlin Mattson, M.D., in the Chair

STRANGULATION OBSTRUCTION DUE TO INTERNAL HERNIA

Inaugural Thesis

B. D. MITCHELL, M.D.

Minneapolis, Minnesota

The two types of mechanical small bowel obstruction differ because in the simple occlusion only one portion of the lumen of the bowel is obstructed by an intrinsic or extrinsic lesion; in strangulation, two loops of bowel are blocked, as well as the corresponding vessels of the mesentery.

As a rule, strangulation obstruction requires much more active and prompt treatment by the surgeon. This is true because a simple occlusion usually progresses slowly and a localized nutritional disorder may develop at the obstruction site, whereas strangulation is more rapid and severe and the incarcerated loop may become necrotic.

Strangulation obstruction of the small bowel composes about 45 per cent of the total number of mechanical obstructions of this organ. By far the greatest percentage of these are caused by external herniae which are relatively easy to diagnose. Obstruction due to strangulation of small bowel in an internal hernia is rare. It is estimated that these comprise .5 to 1.2 per cent of all strangulating obstructions of the small bowel. The mortality attending these cases is high, a recent review stating that the overall mortality is as high as 50 per cent. This figure would undoubtedly be reduced if figures were available for those cases treated in the past ten years.

Report of Cases

Case 1.—A sixty-seven-year-old white woman was admitted to St. Mary's Hospital on May 22, 1952. Five days previous to this she had been seized with a sudden attack of abdominal pain and emesis. She was unable to keep any food or fluids down and she was admitted suffering mainly from dehydration. The pain had entirely disappeared within the first few hours after the onset of her symptoms. The dehydration was corrected by parenteral fluids and by the next day she was able to take food orally without vomiting.

Examination on admission was essentially negative except that there was slight tenderness in the left upper quadrant of the abdomen. There was also a suggestion of a fullness in this area; however, a definite mass could not be outlined.

Two days after admission an upper gastrointestinal x-ray revealed that the stomach was displaced to the right from extrinsic pressure on the greater curvature. The displacement appeared to be due to numerous small bowel loops which were quite markedly distended. Follow-up studies revealed delay in passage of the barium through the small bowel. A barium enema on May 26, was essentially normal except for the above-mentioned small bowel distention which appeared to be localized mostly on the left side of the abdomen. The barium given two days previously had completely passed through the bowel. On May 29, intravenous pyelograms were made and were normal.

On May 29, exploration, with a tentative diagnosis of small bowel malignancy, probably metastatic, was carried out through a right paramedian incision. About four feet of dilated small bowel was found to be projecting through a hole in the omentum which was about 10 cm. in diameter. The bowel wall and mesentery was edematous but otherwise normal. The portion of the omentum distal to the opening was resected and the abdomen closed. There were no other abnormalities within the abdomen. The patient was discharged from the hospital five days after operation and made an uneventful recovery.

Case 2.—An obese sixty-two-year-old white man was admitted to St. Mary's hospital on April 9, 1952. Eight hours previous to admission the patient was moving some heavy furniture in the office of the lumber yard where he was employed; he had a sudden sharp abdominal pain followed in a few minutes by vomiting. He was seen about two hours after onset by his doctor who gave him a hypodermic injection which partially relieved his distress for an hour or two. However, he became worse and was brought to the hospital. The patient had had no previous surgical procedure.

On admission to the hospital the positive findings were as follows: There was moderate distension of an obese abdomen, generalized tenderness of the entire abdomen, more marked just to the left of the umbilicus and voluntary muscle guarding over the entire abdomen with slight but definite rigidity of the midportion of the left rectus muscle. The bowel sounds were normal except for some occasional high pitched sounds.

The leukocyte count was 10,300 with 91 per cent neutrophils. Electrocardiogram and chest x-ray were normal. Serum amylase was 70 units. Flat plate and upright x-rays of the abdomen revealed numerous loops of dilated small bowel and fluid levels within the small bowel loops.

Laparotomy was begun eleven hours after the onset of symptoms. There was a moderate amount of serosanguineous fluid in the peritoneal cavity. A large indurated mass was palpated just to the left of the midline which was easily brought out of the incision and was found to be the edematous tissues involved in a herniation of the jejunum through an opening in the omentum; this opening was about 5 cm. in diameter. The bowel proximal to this was dilated and the distal bowel was collapsed. The herniated bowel was dark in color, dilated and edematous, but definitely viable. The opening was enlarged, the hernia reduced and the involved portion of omentum resected.

The postoperative course was uneventful and the pa-

tient was discharged on the sixth postoperative day. He has been well since. The case has been somewhat complicated by the fact that the patient is claiming industrial compensation for his care and temporary disability.

Case 3.—A twenty-six-year-old white man was admitted to the hospital at 7:00 p.m. on June 9, 1949. Twenty hours previously he had had a sudden attack of severe abdominal pain and shortly after this he vomited. He was seen at home four hours later at which time his abdomen was soft, his temperature was 98° F. with no chills or upper respiratory or urinary tract complaints. The pain had almost disappeared. The pain and vomiting recurred six hours later, shortly after which he began having loose yellow stools.

On admission the patient was vomiting blood and he was obviously a very sick man. I saw the man at this time and during the examination he vomited dark blood on numerous occasions. The abdomen was markedly distended but was peculiar in that the distention seemed to be confined to the upper abdomen. This distention seemed to cause the patient to have difficulty in breathing. There was extreme generalized tenderness and marked rigidity, almost a board-like abdomen; these findings were more marked in the upper abdomen. The temperature was 101° F. and the white blood count was 17,300 with 87 per cent neutrophils. X-ray of the abdomen in the upright position did not reveal any gas under the diaphragm. There had been no previous abdominal surgery.

A guarded preoperative diagnosis of bleeding perforated ulcer was made and a laparotomy was performed. A right upper paramedian incision was made. There was a moderate amount of serosanguineous fluid in the belly. The stomach and colon with the stretched gastrocolic ligament between them puffed out of the wound. Further exploration showed that the colon and transverse mesocolon were pushed downward and a dark colored material could be seen behind the mesocolon and the gastrohepatic ligament. Most of the visible small bowel was collapsed; however, about three feet of the proximal jejunum was enormously distended and the distal end of this loop coursed up into the region of the gallbladder over the hepatic flexure of the colon. It disappeared into the foramen of Winslow. The diagnosis was made, of course, but reduction was extremely difficult and was accomplished only after incising through the gastrocolic ligament and slowly manipulating the bowel on each side of the foramen of Winslow, about eight feet of jejunum being reduced out of the lesser omental cavity. The patient's good condition at this point in the procedure permitted further careful exploration. There was no congenital defect that could give a possible explanation as to etiology.

The abdomen was closed in layers. Gastric suction was discontinued the next day and the patient left the hospital on the tenth postoperative day. He has been well since.

Small bowel obstruction due to strangulation through a congenital defect in the omentum or mesentery, while rare, has frequently been reported in the literature. However, since 1834, when Blandin reported the first case of herniation through the foramen of Winslow, there have been sixty-five cases reported. Most of these cases involved the terminal ileum, and the ascending colon in the strangulation, suggesting a defect in the rotation of the bowel as a possible predisposing cause of the condition. Other factors suggesting possible etiology are: (1) an extremely long mesentery and (2) a large foramen of Winslow. The patient presented here had neither of these findings.

The first operation for this condition was in 1888. The first patient to live following operation for this type of obstruction was in 1914. In none of the cases was the diagnosis made preoperatively and the high mortality has in most cases been due to the fact that operation was delayed too long.

These cases have been presented because of their relative rarity and high accompaning mortality and as a reminder that strangulation of the bowel by internal hernia should always be considered with small bowel obstruction even if the patient has not had a previous abdominal operation.

THE THYROTOXIC HEART

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Hyperthyroidism is an important etiologic factor in the production of auricular fibrillation, cardiac enlargement and congestive heart failure, but there is still considerable uncertainty as to whether hyperthyroidism *per se* is responsible for these manifestations. In short, it is uncertain whether there is a specific type of heart disease caused by hyperthyroidism, or whether the latter is merely a contributory or precipitating factor in individuals already predisposed by coincident heart disease. The term thyrocardiac is restricted to cases in which the hyperthyroidism is associated with recurrent abnormal rhythm or with congestive heart failure. Since many symptoms, such as palpatation and tachycardia, dyspnea, and precordial distress, are commonly observed with uncomplicated hyperthyroidism, their presence is not in itself sufficient to warrant the diagnosis of heart disease. In the great majority of cases of thyroid heart disease, there has been found evidence of associated arteriosclerotic, hypertensive, rheumatic, or syphilitic heart disease. Hyperthyroidism as an exclusive cause of heart disease *does* exist. This results only after a prolonged and severe thyrotoxicosis, associated with auricular fibrillation and eventual heart failure.

Objective manifestations of the thyrocardiac are a rapid pulse with a tendency for a systolic elevation of blood pressure, usually a normal diastolic blood pressure, and an increased pulse pressure. In 10 per cent of patients with thyrocardia a transient or permanent auricular fibrillation occurs. The apical heart beat is often sharp and snapping and visible. A systolic murmur is best heard at the base of the heart or at the pulmonic area. The electrocardiogram discloses *no* distinctive features except for the usual nonspecific sinus tachycardia or the auricular fibrillation. The belief that the T waves become elevated in hyperthyroidism in contrast to the characteristically low T waves in myxedema

has not been substantiated. The heart shadow on roentgen examination shows no distinct features except enlargement and vigorous contractility.

Thyrotoxicosis of itself does not cause angina pectoris, but when it occurs in a patient with coronary arteriosclerosis the increased oxygen needs of the heart may precipitate this disorder. The most serious consequence of hyperthyroidism is the development of congestive heart failure. This complication is rather uncommon before the age of forty, and as stated above, usually occurs in individuals who have already suffered from some other form of heart disease or have been in the state of auricular fibrillation for a long period of time.

In older patients recognition of underlying thyrotoxicosis in heart failure may be difficult. The eye phenomena and the enlargement of the thyroid gland may be absent; in addition, the tachycardia is attributable to the condition of the heart, the increased appetite is diminished by the passive congestion of the viscera, particularly the liver, the loss of weight is obscured by the gain due to edema; and the warmth and flushing of the skin and sensitivity to heat modified by the antagonistic effects of heart failure. Despite these difficulties, thyrotoxicosis should nevertheless be recognized or suspected as an underlying etiologic factor in patients with heart disease; especially those who have a persistent tachycardia that endures after prolonged rest, attacks of paroxysmal auricular fibrillation, particularly in the absence of mitral disease, auricular fibrillation in which the ventricular rate is resistent to the slowing effects of full doses of digitalis, and high output failure in the absence of any other recognizable cause. High output failure can be recognized by an increased venous pressure with a low or normal circulation time. Even when thyrotoxicosis is suspected as the cause of congestive heart failure, the firm establishment of a diagnosis is confronted with additional difficulties. Measurement of the basal metabolic rate becomes unreliable in the presence of heart failure. The increase in the basal metabolic rate up to a plus 25 to a plus 30 per cent cannot be taken as proof of existence of overactivity of the thyroid. In such cases of heart failure where the role of thyrotoxicosis is in doubt, determination of the serum iodine is of value in arriving at a decision. Also the radioactive iodine uptake test is helpful. Unfortunately, these laboratory procedures are not yet readily available. Some help may be obtained from the estimation of the circulation time which is usually normal in the thyrocardiac in spite of congestive heart failure. But the most important and practical clinical method of establishing the presence of thyrotoxicosis in such cases, is the favorable response to the administration of iodine or one of the thiouracil compounds. The treatment of cardiac thyrotoxic disease is a medical and surgical problem. The combination of rest, quinidine, occasional digitalization and the all-important use of antithyroid drugs with the later addition of iodine is necessary to establish eu-thyroid state and additional cardiac reserve before operation can be undertaken. Radio-active iodine has become part of the armamentarium in the treatment of the thyrocardiac, particularly the recurrent thyrotoxic patient who has had previous subtotal thyroidectomy. However, the accessibility to its use is limited. In addition the general advancement of surgical techniques and anesthesia has made it possible for surgery to be practically a definitive treatment for the thyrotoxic heart.

In the recent study of forty patients by Haines and Keating with exophthalmic goiter and cardiac dysfunction, a single dose of I-131 gave good results in twenty-seven cases, fair in eight and poor in five. Retreatment improved these results. Excellent results were also reported by Crile. It seems highly probable that this promising form of treatment will replace both thyroidectomy and antithyroid drugs in the treatment of thyrocardiacs. The method of quinidinization and digitalization has offered a problem. It seems to me that the use of quinidine and digitalis is secondary in the treatment of thyrocardiac disease unless a full blown congestive heart failure is present. It is a known fact that full doses of digitalis do not slow down the rapid heart rate until the effects of the excessive thyroid hormone have been eliminated. If auricular fibrillation and heart failure persist after the basal metabolic rate is reduced to normal either by surgery or antithyrotoxic drugs, then digitalis must be administered to make the heart as efficient as possible and quinidine to restore the normal rhythm. The other means for treating heart failure such as limitation of activity, sodium restriction, diuretics, and thiamine chloride should not be overlooked.

The dosage of digitalis varies according to the size of the patient, as well as to the time interval necessary for full digitalization. The newer and more purified types of digitalis have cut down the side effects considerably. In the older patient cedilanid seems the more desirable because of its faster excretion in case symptoms of overdigitalization occur. However, digitoxin is 100 per cent absorbed and full digitalization can be obtained in one dose. This procedure however is not without danger and is rarely used.

Procaine amide may be used in place of quinidine for persisting superventricular tachycardia. Its usefulness is limited more or less to this particular type of abnormal rhythm. Quinidine has been used more extensively and most satisfactorily in restoring abnormal heart rhythm to normal sinus rhythm. The toxic effects of digitalis or quinidine occur in the thyrotoxic heart as it does in any other cardiac disease when used in sufficient dosage.

Minneapolis Surgical Society

Meeting of January 8, 1953

The President, Hamlin Mattson, M.D., in the Chair

IMMEDIATE CHOLANGIOGRAPHY IN SURGERY

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In this study we plan to review the technical features of immediate cholangiography and discuss its uses and scope and urge its more widespread adoption as a routine procedure in gall-bladder surgery.

P. L. Mirizzi,[4,5] an Argentine Surgeon, first introduced cholangiography in 1931. Since his original observation this procedure has constantly increased in use and scope. Cholangiography has been usually classified as: (1) immediate, that done during the course of an operation on the biliary tract and in the operating room, and (2) delayed, roentgenographic study of the biliary tract performed after an operation by injection of radiopaque media through a T-tube, catheter or some other apparatus which had previously been inserted in the biliary tract. This latter study is usually made in the x-ray department of a clinic or hospital.

Our interest in this device as a useful adjunct to biliary surgery was stimulated by two cases which have been reported previously.[1] Both patients had congenital anomalies. In the first, the common hepatic ducts each contained many stones and did not combine until within about 3 cm. of the ampulla. Immediate cholangiograms would have given valuable information and saved at least one subsequent operation. In the second case the choledochus emptied into a duodenal diverticulum. Following our contact with these cases we became intensely interested in the possibilities of immediate cholangiography and its usefulness as an aid in avoiding difficulties such as we met in these cases.

In any discussion of cholangiography it is necessary that one set out his indications for exploration of the common bile duct during cholecystectomy and at other times.

In 1950, with Drs. Collett and Tirman, we published a study of the cases mentioned above. At this time our indications for choledochostomy were as follows:[1]

1. Jaundice or recent history of jaundice with or without history of chills and fever.
2. Palpable common duct stones.
3. Enlarged common duct.
4. Aspiration of dark muddy bile from the common duct.
5. Many small stones in the gall bladder.
6. Persistent biliary symptoms after cholecystectomy.
7. X-ray evidence of common duct stones.

With the passage of time and more experience the indications for exploration of the common duct have changed. For example, Glenn in October, 1952, gave these indications for exploration of the common duct for stones.[2]

Indications for exploration of common bile duct in combination with cholecystectomy:

1. Palpable stone in the common duct.
2. A history of jaundice preceded by or associated with pain or intermittent elevation of fever.
3. Thickened common duct wall with or without dilatation.
4. Contracted gall bladder containing stones.
5. Dilated cystic duct.
6. Enlarged head of the pancreas.
7. If the patient is over sixty years of age and has a prolonged history of biliary tract disease.

Our present criteria for opening the common bile duct are as follows:

1. History of jaundice with or without chills and fever.
2. Palpable common duct stones.
3. Enlarged common and/or cystic duct.
4. Many small stones in the gall bladder.
5. X-ray evidence of common duct stones.
6. Suspected congenital anomaly of biliary tract.
7. Persistent biliary symptoms after cholecystectomy.

Whenever the condition of the patient will allow after we insert a T-tube in the common duct during choledochostomy it is now our routine practice to do an immediate cholangiogram. The technique of this procedure will be discussed later when we are describing the so-called "screening" cholangiograms. Even with immediate cholangiography stones may be missed. On one occasion we inadvertently allowed a T-tube to overlie the ampulla and obscure a small stone at the distal end of the common duct. Before the T-tube is removed postoperatively another cholangiogram (delayed) is done in the x-ray department. Using the criteria above as indications for choledochostomy we have recovered

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calculi from the common duct in from 43 to 50 per cent of explored common bile ducts.

But what about common ducts we do not explore, what about the biliary dyskinesia cases, or persistence of symptoms after cholecystectomy—stricture, neoplasm, et cetera? What can we do to avoid these unpleasant situations for the patient and surgeon alike? Again quoting Glenn,[2] 'in all patients with stones in the gall bladder one in ten will have stones in the common duct."

We feel that what we call an immediate "screening" cholangiogram is an attempt to avoid leaving silent stones behind in the duct, recognizing stricture or anomalies or obstructions at the time of the original biliary tract surgical procedure when one has the best opportunity to correct these difficulties.

Many devices have been employed for cholangiograms without incising the common bile duct: (1) aspiration of the gall bladder and injection of the radiopaque material via a hypodermic needle into the gall bladder, cystic or common duct; (2) insertion of a catheter through the partly incised cystic duct and injection of the dye through this catheter. This method we have used and we will describe it in detail now.

Technique Employed for Immediate Cholangiography

1. Plywood cassette holder containing a 14x17 film on operating table under patient.

2. Make any type of incision which seems most feasible to the surgeon.

3. Sew on drapes.

4. Isolate the cystic duct and ligate it close to the gall bladder to avoid forcing stones out of the gall bladder.

5. Pass another ligature around the cystic duct close to common duct.

6. Incise the cystic duct widely enough to insert catheter.

7. After catheter (ureteral or urethral, usually size No. 6) has been inserted, ligate this catheter in place. Don't insert catheter too far or poor visualization will be obtained of the hepatic ducts and catheter may go through the ampulla.

8. Start injection of warmed 70 per cent diodrast and inject with gentle pressure 3-5 cc. and take a film. Be careful the catheter does not overlie the duct.

9. X-ray factors for films: Kv. 70-75, Distance 30 inches, Ma. 60, Time 1/4 seconds. Angle tube to avoid spine.

10. Inject diodrast at least 5 cc. more and take another cholangiogram.

11. Leave the catheter in place and do a cholecystectomy.

12. When films are developed and if they are unsatisfactory, repeat cholangiogram can be made because the catheter is still in the duct.

13. If the films are adequate and there is no reason for further procedure on the common duct the catheter is removed and the stump of the cystic duct ligated or sutured.

This technique which we have developed is almost exactly the same as that described by Mixter and colleagues in 1951,[6] although we were unfamiliar with his work when we were developing this technique.

Certain features deserve particular mention. Since we have been using this procedure and meticulously exposing the cystic duct we have been much more aware of variations in this organ and the structures adjacent to it; in other words, our exposure and visibility have been improved. With increasing practice only about ten minutes is added to the time of a cholecystectomy when immediate cholangiograms are performed.

The apparatus we have used is available in any well-equipped operating room. Probably better technical roentgenograms could be obtained with a built-in Bucky in the operating table or even operating on a urological table in the cystoscopic room as some workers have done, notably Dean MacDonald.[3] Using the technique we have described we have regularly obtained cholangiograms of diagnostic quality. It is important and necessary to have the close co-operation and teamwork of the x-ray department for successful immediate cholangiograms. One important feature in the technique described is using a high milliamperage which shortens the time of exposure to 1/4 second. Synchronizing the exposure with the end of exhalation, movement was reduced to a minimum.

Summary

We urge routine use of immediate cholangiography where it is applicable in gall-bladder surgery. Immediate cholangiography is not infallible but by using this device unsuspected stones, strictures, obstructions and anomalies of the biliary system may be discovered and treated at the optimum time, during the first surgical procedure on the biliary tract. The operating surgeon will have a greater certainty and sureness from the use of this adjunct to biliary tract surgery.

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EXTENDED OR SUPER-RADICAL MASTECTOMY FOR CANCER OF THE BREAST

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1. *Limitations of the Conventional Radical Mastectomy.*—The radical mastectomy operation for carcinoma of the breast, developed in the nineteenth century through a logical series of steps that culminated in the work of Halsted and Willy Meyer in 1894,[4,9] has been thought of as model operation to be emulated, if possible, in part of the body diseased with cancer. It is conceived to remove, in one continuous segment, not only the primary cancer but the most likely areas of lymphatic metastases as well. This concept has become a fundamental one in the entire realm of cancer surgery and yet it is now apparent that the conventional radical mastectomy itself does not fulfill this basic aim. Regional lymphatic drainage areas, which frequently harbor metastases, remain untouched by the conventional operation.

Doubtless the low cure rate which follows radical mastectomy for patients having cancers already metastasized to the axillary nodes is due, in large part, to the residual cancer left behind in these other regional areas. Failure among those with diseased axillary nodes must, in many instances, mean that some cancer has been left behind just beyond the area of dissection. In such cases, the areas most likely to be involved are the supraclavicular or parasternal lymph node chains.

The importance of the parasternal nodes has been emphasized by recent studies indicating the freqency with which they are involved in cancer of the breast. Using a short parasternal incision prior to the conventional operation, Handley and Thackray[7] removed nodes from the second intercostal space and found cancerous involvement in 38 per cent of all their cases.

Of those with axillary lymph node metastases, 52 per cent had parasternal involvement in addition. More recently Dahl-Iversen[2] has studied fifty-three cases and found the parasternal nodes involved with cancer in 19 per cent, while if only those with axillary involvement were considered, the percentage of parasternal involvement rose to 24 per cent. A further observation of interest in both of these series was the high percentage of parasternal node involvement in those cases with medially located cancers of the breast. In the English series metastases to the parasternal nodes were found in 71 per cent of the cases with medially located cancers but in only 21 per cent of those with laterally placed cancers. The parallel figures for the Dahl-Iversen series were 30 per cent and 12 per cent.

Residual cancer in the supraclavicular nodes may also be the cause for failure of the conventional radical mastectomy. Some recent evidence emphasizing the frequency with which these nodes are involved has been published by Andreassen and Dahl-Iversen.[7] They did a supraclavicular dissection in addition to the usual radical mastectomy in ninety-eight cases and found cancer involving the supraclavicular nodes in 17 per cent of all their cases while 33 per cent of those in the series with axillary node involvement had supraclavicular metastases as well.

The radical mastectomy is an operation that requires amendment. In its traditional form it fails to cure many so-called operable cases of cancer. Yet despite this fact, and further, despite the evidence that among many uncured patients who had the operation, cancer was present in the supraclavicular or parasternal nodes at the time of surgery, the operation for cancer of the breast has not, in the past, been successfully extended into these areas. As generally used today, it is an incomplete operation limited by two anatomical barriers: the clavicle and and bony chest wall.

2. *Suggestions for Extension of the Radical Mastectomy.*—Surgeons treating carcinoma of the breast have long been aware of the limited nature of the conventional operation and a few have tried to extend it to encompass more of the lymphatic drainage areas. The first of these was Halsted himself who added a supraclavicular dissection to the radical operation in over 100 cases.[5] Later Sampson Handley[6] removed some of the parasternal lymph nodes in a few patients with carcinoma of the breast but he did not recommend general adoption of this modification. A number of others have, more recently added either a parasternal or a supraclavicular dissection to the radical mastectomy but not both together.[1,2,7,10] The extended radical operation to be discussed here has been described previously by Wangensteen.[11] It adds, for the first time, both a supraclavicular and a mediastinal dissection to the usual radical mastectomy.

3. *Assumption Upon Which Use of Super-Radical Operation Is Based.*—Before describing the technique of this operation, it is important to consider some of the assumptions that are implicit in the use of this type of treatment for cancer of the breast. Though most, if not all, of these assumptions have been under attack at one time or the other, we feel that they are all tenable and at least sound enough to justify a trial of the present surgical approach.

(a) It must first of all be granted that cancer of the breast can be cured even after it has spread to the lymph nodes. The fact that the Halsted radical mastectomy cures many patients whose disease has spread to the axillary lymph nodes establishes this point. Many patients with lymph node involvement have been cured and perhaps more can be cured if more lymph nodes are removed.

(b) It must also be assumed that cancer of the breast

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spreads largely through the lymphatics and in a progressive manner. There should then be a number of cases in which it has spread beyond the areas of the conventional radical mastectomy, on to some of the supraclavicular or parasternal nodes, but still no further. This concept of an essentially progressive lymphatic spread is important not only for the acceptance of this operation; it is a basic one in most cancer surgery.

(c) The third and perhaps the weakest assumption we have made is that cancer of the breast can be cured by a discontinuous excision. In the operation under consideration it has been technically unfeasible to remove all the lymphatic drainage areas in direct continuity. It is felt that this factor in technique may not be of great importance, for a separate dissection of the regional lymphatics has been practiced successfully in other areas of the body, especially in the head and the extremities.

(d) Finally, we have assumed that surgical excision is a better way in which to treat cancerous lymph nodes than in roentgen therapy. Though McWhirter of Scotland,[8] especially, stands against this contention, it is a principle accepted by many cancer therapists and a basic tenent of most cancer operations.

Technique

1. *Extent of the Operation.*—The super-radical mastectomy may be done either as a one or two-stage operation. In either case there are three main areas of dissection. First, there is the conventional radical mastectomy and axillary dissection; this is followed by a supraclavicular and cervical dissection extending as high as the upper border of the thyroid cartilage; and finally, a parasternal and mediastinal dissection are done. This final part of the dissection includes not only an excision of the entire parasternal lymph node chain along with the internal mammary blood vessels, but a mediastinal dissection as well, which in turn includes a partial or complete thymectomy and a removal of the lymph node bearing tissue along the great vessels down to the heart.

2. *Incisions.*—The operative field is usually exposed through the two incisions. The conventional mastectomy and axillary dissection are done through an oblique incision encompassing the lesion and extending out on the anterior axillary fold while the cervical and mediastinal dissections are done through a second more medially placed incision extending from the neck down over the lateral edge of the sternum. Care is taken to see that enough skin is left to allow primary closure of these wounds.

3. *Elevation of the Clavicle and Division of the Sternum.*—Exposure of the subclavicular and mediastinal areas in a continuous and easily accessible field is made possible by dividing the bony framework of the thoracic inlet. The first rib is removed from its sternocostal junction laterally nearly to the angle after which the sternum is split in the midline from the jugular notch down to the level of the fourth interspace. To allow elevation of the clavicle, with its attached one-half of the manubrium, and spread of the sternum, the sternum is divided transversely at the first and fourth intercostal spaces. With retraction of the sternum, excellent exposure of the upper mediastinum is provided. After the dissection is completed, fixation of the sternum is obtained by wiring the divided portions tightly together.

4. *One or Two-Stage Operation.*—Though a one-stage procedure is obviously to be preferred as a more satisfactory cancer operation, there has been, in general, a smoother convalescence among those patients whose operation has been divided into two stages. Most of those who have had the operation done in two stages were patients for whom the extended dissection was not contemplated until the case was reconsidered after the conventional mastectomy, in light of the microscopic finding of diseased axillary nodes. However, in a number of more recent cases a two-stage operation was planned in the beginning. With this approach the morbidity and mortality have been lower but we are unable, as yet, to measure its relative effectivness in eradicating the cancer.

Indications

Surgery as extensive as that described here is not indicated for all patients with carcinoma of the breast. The increased hazard associated with operations of this magnitude dictates a carefully limited usage. There are obviously many patients with localized carcinoma of the breast in whom an extensive dissection is not necessary for cure. It is rather the patients who are most likely to exhibit extension of their cancer beyond the reach of the Halsted operation who should be selected for this more extensive dissection. As indicated by the evidence presented earlier, the best sign at present for detecting these patients is the presence of metastases in the axillary lymph nodes. Hence, the operation is primarily indicated for those patients who have unequivocal evidence of axillary metastases at the time of surgery. It has also been used, as a secondary procedure, for those in whom axillary metastases have been found on subsequent pathological examination of the operative specimen, though the metastases were undetected at the time of surgery. The extended operation has further been used for some patients who, after a Halsted mastectomy, have shown evidence of residual cancer, usually in the supraclavicular or parasternal regions.

Perhaps the presence of a medially located breast lesion, should be sufficient indication for the use of this type of operation, even if the axillary nodes are not involved. Certainly, the evidence of the Danish and English investigators, confirmed in our own experience, showing the high incidence of parasternal lymphatic involvement among patients with medial lesions, supports such a course of action.

Findings

1. *Involvement of Lymph Nodes Beyond the Area of the Conventional Mastectomy.*—The super-radical mastectomy has been used for the treatment of fifty patients with carcinoma of the breast and among these the most stricking observation has been the common

TABLE I. FREQUENCY OF CANCER BEYOND THE LIMITS OF THE CONVENTIONAL DISSECTION

Type of Operation	Number of Patients	No Cancer Beyond Conventional Dissection	Cancer Beyond Conventional Dissection
One Stage	28	10	18 (64%)
Two Stage	22	10	12 (55%)
Total	50	20	30 (60%)

finding of cancer outside of the limits of the conventional mastectomy (Table I). In the entire series of cases, lymph node involvement has been found beyond the areas of the conventional dissection in 60 per cent. Twenty-eight of the patients had their super-radical mastectomy as a one-stage procedure and of these eighteen or 64 per cent had cancer in nodes that would not have been removed by the radical mastectomy alone. Of the twenty-two patients who had a two-stage operation, for one reason or another, twelve or fifty-five per cent had cancer found at the second or super-radical stage of the operation. This is impressive evidence demonstrating how frequently the conventional radical mastectomy is an inadequate operation.

Since, as was mentioned earlier, a number of the operations were done in women with very extensive cancers, or for patients with residual or recurrent cancer, the percentage of those having cancer beyond the region of radical mastectomy in this series is probably higher than would be found among all patients with lesions generally considered to be operable. However, it is important to note that if just those patients operable by the criteria of Haagensen and Stout[3] are considered, cancer was still found beyond the range of the conventional operation in a high percentage of cases, in 49 per cent.

2. *Medial Lesions and Mediastinal Nodes.*—Another finding of importance is illustrated in Table II which shows the relative frequency of mediastinal metastases in medial as contrasted with laterally located breast lesions. A high proportion of patients with medially placed lesions have metastases in the parasternal or mediastinal lymph nodes. This is not a surprising finding; it suggests, as was mentioned above, that all patients with medially located cancers should have a mediastinal dissection.

Results

It is clear that the super-radical mastectomy, in a number of cases, removes cancer that would have been left behind by the conventional mastectomy alone. Still, it is not yet established that surgical removal of this additional cancer will result in any more cures than are obtained with less radical methods. The long period of observation that any evaluation of cancer therapy demands is not yet possible here. For the present we must concern ourselves only with the immediate results.

In addition to the fifty patients who have had the operation for carcinoma of the breast, four others have had it for miscellaneous conditions and in the entire group there were seven operative deaths, or an operative mortality rate of 13 per cent. All but one of these deaths were among those who had had the operation in one stage, a fact which at least for a while,, directed our attention to the possibility of doing an adequate operation in two stages. Deaths were also more frequent among the older patients and because of this we have not recently used the operation for patients over seventy years of age.

TABLE II. PARASTERNAL METASTASES WITH MEDIAL OR LATERAL LESIONS

Site of Breast Lesion	Mediastinal or Parasternal Metastases:	
	Present	Absent
Medial	6	3
Lateral	11	16

The operative deaths were caused by a rather wide variety of complications, some of which may in the future be preventable. Two patients died of convulsions in the early postoperative period, and, though the possibility of cerebral air embolism secondary to a pulmonary tear was considered, the explanation of their deaths is not clear. A third fatality was more obviously due to an undetected tear in the lung for this patient had a course complicated by a pneumothorax, atelectasis, and paradoxical breathing. One patient died suddenly in the early postoperative period with a hyperthermia in which the temperature reached 106° F. Two patients died of secondary hemorrhages from the subclavian and common carotid arteries, one five days postoperatively, and one thirty-one days postoperatively following a complicated course in which wound breakdown was a prominent feature, and finally, one patient died of a pulmonary embolism.

The mortality of an extended operation for cancer of the breast need not be high. In our own experience the technique and management have gradually improved with a consequent reduction in mortality. In fact, the last fourteen super-radical dissections have been done without any deaths. The morbidity of the operation is, and doubtless will continue to be, higher than that of the conventional radical mastectomy, yet the ultimate deformity is no greater.

Summary

Since the conventional radical mastectomy is demonstrably an incomplete operation, an extended or super-radical mastectomy has been devised. This operation adds cervical, supraclavicular, retrosternal and mediastinal dissections to the conventional radical mastectomy. Using this operation primarily for patients whose cancer has already metastasized to the axillary lymph nodes, a high proprotion (approximately 60 per cent) have been found to have cancer in regional nodes which would not have been removed by the more limited radical mastectomy. Since its ultimate worth cannot yet be evaluated, the extended operation is at present deserving of only a limited trial for patients whose disease would probably not be removed by less radical operations.

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WATCH IT, DOC.

(Continued from Page 753)

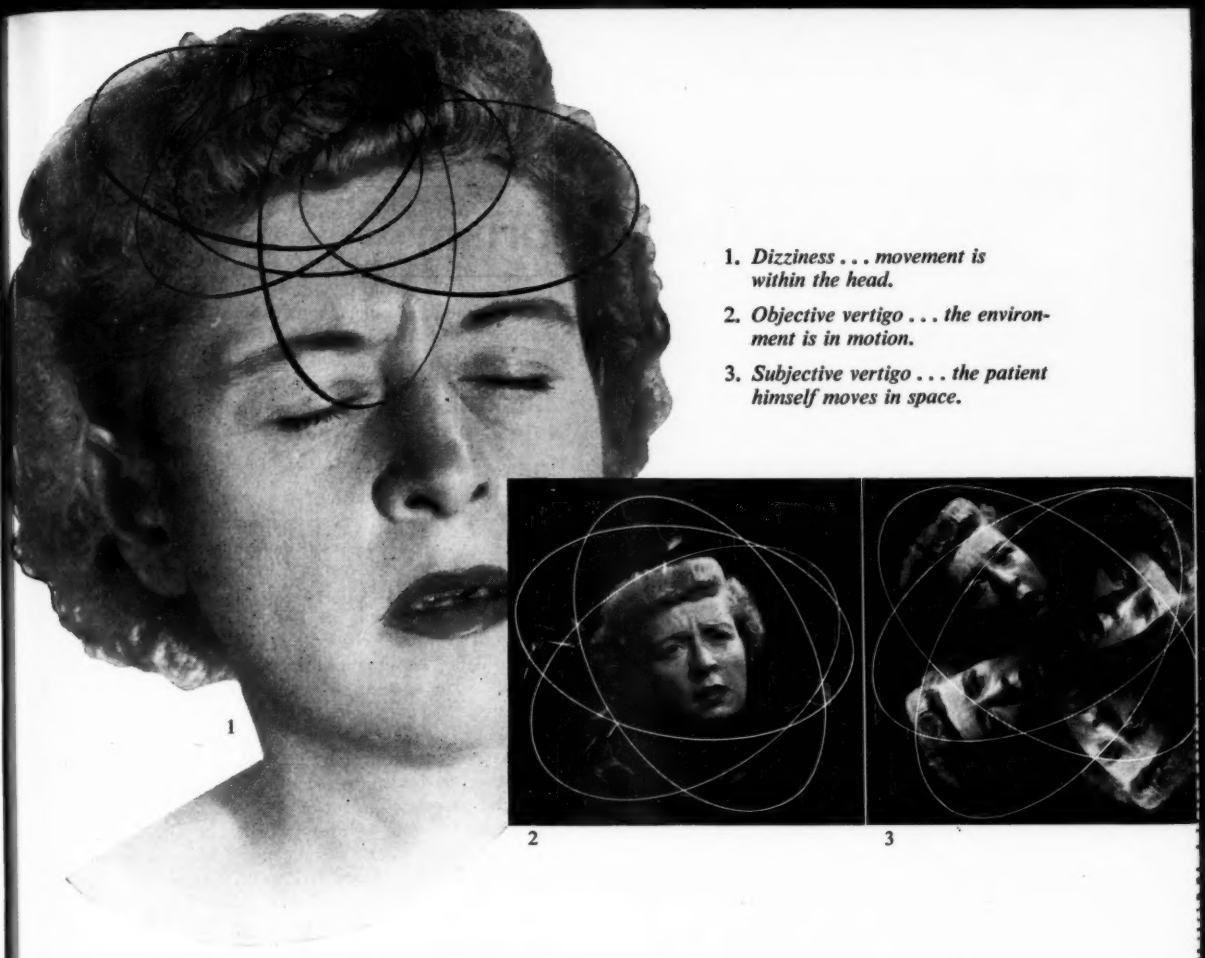
hospitals. This viewpoint was taken by the Medical Society of the City of New York, by the King's County Medical Society of Brooklyn and the New York State Medical Society. The plan seemed to smack too much of socialized medicine, and the fear was expressed that such a scheme might be attempted elsewhere throughout the state where additional housing projects were being planned. It seems such attempts are being made.

It must have irritated every thoughtful physician to read that a member of his profession could be capable of saying what Dr. Joseph E. Corr, Chairman of the Committee on Medical Economics of the Medical Society of New York, is purported to have facetiously said. It is with a great deal of relief that we are informed that Dr. Corr never made any such remark and has written *Life* demanding a retraction. The *Life* editorial writer obtained his information from an article in the *New York Times* of April 7, 1953, in which Dr. Corr was so quoted. On that same date, April 7, 1953, Dr. Corr wrote the *New York Times* that he had been falsely quoted.

Here is a typical example of a smart-aleck reporter on the *New York Times* writing a false report and the *Life* editorial writer perpetuating the falsehood by failing to check the correctness of the report, to the detriment of the medical profession. Apologies are in order.

For the information of *Life*, let it be said that the medical profession can be counted on to continue to oppose socialism wherever it raises its ugly head and to support the American system of free enterprise. We are inclined to agree with Herbert Hoover that the American economy cannot exist part socialistic and part free.

Perhaps the most important factor in the incidence among hospital personnel is the undiagnosed case of tuberculosis. The only way to prevent contact with such sources is to discover these unsuspected cases earlier than seems possible in most general hospitals. It is suggested that the best means of offering this protection to medical personnel is to make routine chest films of every patient admitted to a hospital. WILLIAM A. ABRUZZI, JR., M.D., and RUFUS J. HUMMEL, M.D., *The New Eng. J. of Med.*, April 23, 1953.



1. *Dizziness . . . movement is within the head.*
2. *Objective vertigo . . . the environment is in motion.*
3. *Subjective vertigo . . . the patient himself moves in space.*

1 2 3

TYPES OF VERTIGO:

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The disagreeable sensations of dizziness which physicians are frequently required to explain to patients have been described by Simonton[1] as varying from a slight sensation of confusion to severe vertigo.

While dizziness or giddiness is classified as a sensation of unsteadiness with a feeling of movement within the head, in vertigo the environment seems to spin (objective vertigo) or the body to revolve in space (subjective vertigo). Labyrinthine disturbances are likely to cause a sensation of rotation. Among the more common causes of dizziness or vertigo, this author lists: Damage to the vestibular nuclei or tracts in the central nervous system, involvement of the vestibular end organs by disease of the ear, Ménière's disease, toxicity of drugs, ocular vertigo from sudden diplopia, visual field defects, looking down from heights and motion sickness due to hyperactive labyrinthine reaction from riding in vehicles.

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SEARLE *Research in the Service of Medicine*

In Memoriam

LEON MORRELL BOYD

Dr. Leon M. Boyd of Alexandria, Minnesota, died May 29, in a local hospital.

He was born in Chautauqua, New York, August 18, 1883. He was graduated from the Alexandria High School in 1901 and from the University of Minnesota Medical School in 1908. He took postgraduate work from the Philadelphia Polyclinic in 1909 and from the Manhattan Eye and Ear Clinic in New York City, the Bellevue Hospital Medical School and the Cornell Medical School in 1914. Later he studied at Tulane Medical School in New Orleans.

Dr. Boyd was a member of the Park Region District Medical Society, the Minnesota State Medical Association and the American Medical Association. He was a member of the First Congregational Church and a member of its Board of Trustees for many years. He had been a member of the Alexandria Public Library Board and served on the School Board of District No. 2 for twenty-four years.

Dr. Boyd served on the University of Minnesota Advisory Board and was a member of Alpha Tau Omega Academic Fraternity and Alpha Kappa Kappa Medical Fraternity. He was a member of the Masonic Lodge and a former member of the Kiwanis Club. He was also a member of the American Academy of Ophthalmology and Otolaryngology.

Dr. Boyd is survived by his wife and two children, James and John. One son, Leon Boyd, Jr., passed away in 1936.

HARRY W. CHRISTIANSON

Dr. Harry W. Christianson, of Minneapolis, died on June 11, 1953, at his home following a year's retirement due to heart disease.

Dr. Christianson was born at Belgrade, Minnesota, August 5, 1893. He earned his B.S. degree and also a degree in pharmacy before obtaining his M.D. from the University of Minnesota in 1920. He interned at the Swedish Hospital, Minneapolis, and was in private practice at Wykoff, Minnesota, from 1921 to 1929. He then took a residency in proctology at the Mayo Clinic from 1929 to 1932. In 1932 he began practice in Minneapolis, limiting his practice to proctology.

Dr. Christianson was clinical associate professor of proctology at the University of Minnesota Medical School, was proctologist for the Students Health Service at the University of Minnesota, a Fellow of the American College of Surgeons, and a member of the American Proctological Society. He was also a diplomate of the American Board of Surgery and Proctology. He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Membership in other organizations included the Minneapolis Club, Athletic Club, Masons, Knights Templar and Scottish Rite.

Dr. Christianson is survived by his wife, the former Bessie Dawson Miller; a daughter, Mrs. Betty L. Anderson, and two sons, Harry J. and George Allen.

JOHN L. CRENSHAW

Dr. John L. Crenshaw of the Section of Urology of the Mayo Clinic, Rochester, Minnesota, passed away June 17, 1953. He was seventy-one years of age.

Dr. Crenshaw was born in Elizabeth, New Jersey, on January 2, 1882. He obtained his M.D. degree from the University of Virginia in 1906. He interned at University of Virginia Hospital in 1906 and 1907. From 1907 to 1910, he practiced medicine at Charlottesville, Virginia. He was an intern at St. Mary's Hospital, Rochester, Minnesota, in 1910 and 1911 and then was appointed associate in urology in the Mayo Clinic. Under the Mayo Foundation, Graduate School, University of Minnesota, he became assistant professor of urology in 1920 and associate professor in 1923.

Entering the field of urology when he did, Dr. Crenshaw contributed to its development; he was author or co-author of about twenty articles on his specialty. Those who worked with him and who came under his care, however, valued him even more as a practitioner. He always was where he was supposed to be, doing what he was supposed to do, with superb, down-to-earth judgment and bluff humaneness.

Dr. Crenshaw was certified by the American Board of Urology in 1935. Besides membership in the American Medical Association, he held membership in the American Association of Genito-Urinary Surgeons and in the American Urological Association, of the North Central Branch of which he was secretary-treasurer in 1924-25 and president in 1925-26. He also was a member of Sigma Xi and of Phi Rho Sigma.

In World War I, Dr. Crenshaw was commissioned captain in the Medical Corps, United States Army. He was chief of the urological service at Embarkation Hospital, Camp Stuart, Newport News, Virginia.

Few men of Rochester were more enthusiastic fishermen, hunters and gardeners than was Dr. Crenshaw. It was, therefore, saddening to his friends that the illness which caused his retirement in 1944 was a rheumatic condition which immobilized him. To see this vigorous, irrepressible man confined to a wheel chair was touching. The doctor, however, was not a seeker of sympathy for himself, and the lines of humor were not erased from his face.

Dr. Crenshaw and Nell Bryant were married in 1919. Their son, John L. Crenshaw, is a physician in Salt Lake City and their son, William B. Crenshaw, also a physician, is at the University of Michigan, in Ann Arbor. Their daughter is the wife of Dr. G. R. Diessner, of Rochester.

HENRY DUNCAN

Dr. Henry Duncan, of Marietta, Minnesota, died on May 22, 1953, at the age of eighty-five years.

Dr. Duncan was born near the village of Boyfield, Ontario, Canada, on November 1, 1867. At the age of four he came with his father to Maryville, Missouri. He was graduated from Maryville Seminary and after several years of teaching school and farming, studied medicine at Rush Medical College in Chicago, graduating in 1900. He came to Marietta in 1902 where he practiced for thirty-two years, retiring at the age of sixty-eight.

Dr. Duncan is survived by his wife, the former Clara Olson. They have four children: Donald of Galveston, Texas; William of Webster, South Dakota; Mary (Mrs. L. M. Hammer) of Mankato; and Charles of Eugene, Oregon.

CARL O. ESTREM

Dr. Carl O. Estrem, of Fergus Falls, died on June 5, 1953, of heart disease. Although he suffered the first attack of coronary occlusion in 1940, he maintained an active interest in his practice of medicine and other activities, and continued to attend medical meetings regularly until a few weeks prior to his death.

Dr. Estrem was born in Willmar, Minnesota, May 30, 1880. His preliminary education was obtained at the Willmar High School and the Willmar Seminary. He received his B.A. degree from Luther College, Decorah, Iowa, in 1901. He then was the assistant cashier of the New London (Minn.) State Bank for two years but resumed his studies and was graduated from the University of Minnesota School of Medicine in 1907, followed by internships in Deaconess Hospital and General Hospital in Minneapolis.

In 1912, Dr. Estrem married Edith Beatrice Thorpe. The seven children born into this family include two sons who are members of the Park Region Medical Center, which Dr. Estrem founded, as the Estrem Clinic, in 1939. Dr. Robert D. specializes in Surgery and Dr. Ralph L., in X-ray and Internal Medicine.

Dr. Estrem practiced medicine at Madison, South Dakota, from 1908-09, and at Detroit Lakes from 1909-14. He specialized in surgery after moving to Fergus Falls in 1914.

Dr. Estrem was a member of the Park Region District and County Medical Society, the Minnesota State Medical Association, the American Medical Association, the American College of Surgeons, Kiwanis Club, and the First English Lutheran Church, of Fergus Falls. He had been consulting surgeon to the Fergus Falls State Hospital staff since 1929. He was an ardent sportsman and conservationist and was especially fond of fishing and duck hunting.

Dr. Estrem was always keenly interested in all phases of church work, and, after becoming a Fellow of the American College of Surgeons, he devoted much of his time and efforts to raising all the standards of hospital service at St. Luke's Hospital, Fergus Falls, which he

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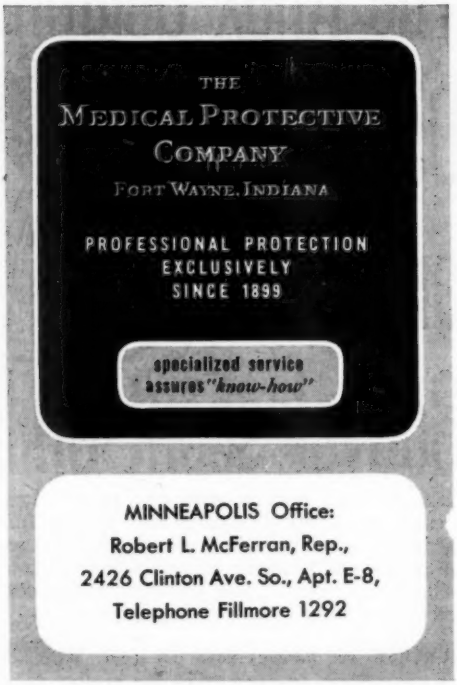

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Surgical Technic, Surgical Anatomy and Clinical Surgery, four weeks, starting August 3
Surgical Anatomy and Clinical Surgery, two weeks, starting August 17
Basic Principles in General Surgery, two weeks, starting September 21
Surgery of Colon and Rectum, one week, starting September 21
General Surgery, one week, starting October 5
General Surgery, two weeks, starting October 12
Thoracic Surgery, one week, starting October 12
Esophageal Surgery, one week, starting October 19
Breast and Thyroid Surgery, one week, starting October 26
Gallbladder Surgery, ten hours, starting October 26
Fractures and Traumatic Surgery, two weeks, starting October 26
GYNECOLOGY—Intensive Course, two weeks, starting September 21
Vaginal Approach to Pelvic Surgery, one week, starting
OBSTETRICS—Intensive Course, two weeks, starting October 5
MEDICINE—Intensive General Course, two weeks, starting September 8
Electrocardiography and Heart Disease, two weeks, starting October 12
Allergy, one month and six months, by appointment
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served as Chief of Staff for many years. It was Dr. Estrem who conceived the idea of establishing the Northern Minnesota Medical Association and he devoted much effort towards its formation and development. In his passing, Medicine has lost a capable surgeon, a real leader and a Christian gentleman.

JAMES LAWRENCE McLEOD

Dr. J. L. McLeod of Grand Rapids, Minnesota, passed away on June 8, 1953, at the age of fifty-two.

Dr. McLeod was born in Estevan, Saskatchewan, Canada, on May 19, 1901. He obtained his M.D. from the University of Manitoba Medical School in Winnipeg in 1926. After interning at St. Boniface Hospital in Winnipeg he practiced at Bovey, Minnesota, from 1926 to 1932, when he moved to Grand Rapids where he became senior partner in the Itasca Clinic.

Dr. McLeod was president of the Independent Progressive Voters Association of Minnesota and was a member of the state central committee of the Farmer-Labor party in 1933. He served as state senator from 1934 to 1937 from the 52nd District. He was elected District Governor of Rotary International at Denver, Colorado, in 1941. This district included Minnesota, North Dakota, Wisconsin and Ontario.

He was an outstanding athlete in his youth and obtained nine M's in undergraduate days at the University of Manitoba in football, track and basketball.

He was a member of the St. Louis County Medical Society, the Minnesota State Medical Association and the American Medical Association.

Dr. McLeod is survived by his wife, Janet; a son, Robert, and a daughter, Mrs. Diane Stackle.

WILLIAM REGINALD McCARTHY

William R. McCarthy, for many years a surgeon in St. Paul, died on June 22, 1953, in Van Nuys, California. He was sixty-six years of age and died of carcinoma of the bronchus.

Dr. McCarthy was born in Saint Paul May 19, 1887. He attended St. Thomas Academy in St. Paul, the University of Minnesota Medical School and Marquette Medical School where he was graduated in 1911. He interned at the City and County hospital in Saint Paul.

Dr. McCarthy was a Fellow of the American College of Surgeons. He was president of the Ramsey County Medical Society in 1943 and was a First Vice President of the Minnesota State Medical Association.

In 1945 he became the medical director for the Eighth United States Civil Service medical service for rehabilitation of veterans and civilians. He had an appointment to the State Hospital in Anoka for a brief period before he became ill in March, 1953, and moved to California where his son, John R., lives in Tarzana, and his daughter, Mrs. A. W. Osborn, Jr., lives in Van Nuys.

Dr. McCarthy was a fine athlete and obtained his M in baseball at the University of Minnesota. Of great pride to him was the acquisition by his son, Lt. John R. McCarthy, in 1942 of the Navy Cross for extraordinary heroism in the battle of Coral Sea and at Mid-

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way. He piloted a scout bomber in the Midway battle and after shooting down two Jap Zero planes, ran out of gas and had to bail out. He suffered a broken nose and a lacerated scalp but was picked up in his rubber raft. On the morning of December 7, 1941, he was flying toward Pearl Harbor in company with another plane piloted by Lt. Charles Dickinson when he was shot down and fractured his leg in bailing out. Fortunately he was rescued on this occasion also.

Besides being a member of the Ramsey County Medical Society, the Minnesota State Medical Association and the American Medical Association, Dr. McCarthy was a member of the Clinical Club of Saint Paul and the Staffs of St. Luke's and Miller Hospitals.

Dr. McCarthy had a wide circle of friends within and without the profession. His friendly manner and sociable qualities made him most popular with his many acquaintances.

Dr. McCarthy lost his wife several years ago but he is survived by his son and daughter.

EDWARD T. REEVE

Dr. Edward T. Reeve, a physician of Elbow Lake, Minnesota, since 1900, died June 5, 1953, at the age of eighty.

Dr. Reeve was born in Minneapolis June 17, 1872. In 1883 he moved with his parents to Buxton, North Dakota. He was graduated from Hamline Medical School in 1897. After interning at St. Mary's Hospital, Minneapolis, he took postgraduate work at the Polyclinic in New York and at the Chicago Postgraduate School.

He practiced at Parker's Prairie, Minnesota, from 1898 until 1900, and at Alexandria and Elbow Lake for short periods before locating at Elbow Lake in 1900.

Dr. Reeve was a member of the Park Region Medical Society, the Minnesota State Medical Association and the American Medical Association. He was honored in 1948 by the people in his community for his completion of fifty years of practice. He took an active interest in the affairs of his home town and was a member of the Civic and Commerce Association, the Lions, and Park Region lodge.

He is survived by his wife and two sons, Edward, and Charles, a student at the University.

Dr. Reeve was an able surgeon and physician and a man of energy and resolution, whose qualities won him the admiration and respect of those who knew him.

It is a matter of well authenticated experience that in both world wars, where large segments of the population of some countries usually offering adequate food supplies were insufficiently nourished, the incidence of and mortality from tuberculosis in such areas definitely increased. Possibly some of these patients suffered from primary infections, but no doubt in many of them reduced resistance led to reinfection or the reactivation of quiescent lesions. GEORGE BLUMER, M.D., *Conn. State Med. J.*, May, 1952.

✦ Reports and Announcements ✦

SECOND INTERNATIONAL CONGRESS OF CARDIOLOGY

The Second International Congress of Cardiology will be held in Washington, D. C., September 12-15, 1954. It will be immediately followed by the Annual Scientific Sessions of the American Heart Association, September 16-18, 1954. The opening session will be held in the auditorium of Constitution Hall at 10:30 a.m. on Sunday, September 12, 1954, with addresses of welcome. A reception will be given at the Mayflower Hotel at 5:00 p.m. on the same day for all members of the Congress and their families. A banquet will be held September 15, 1954, at 7:30 p.m.

The Scientific Sessions lasting for three days will include formal papers, panel discussions, clinical pathological conferences and visits to important medical centers in Washington and Bethesda. The program will be printed in French, Spanish and English. Immediate translation of some of the papers and discussions will be made in three languages.

A series of Post-Congressional conferences and visits to at least twenty of the leading cardiac clinics in different parts of the U. S. and Canada has been arranged by special committees of local Heart Associations in the various cities.

INTERNATIONAL COLLEGE OF SURGEONS TO MEET IN NEW YORK IN SEPTEMBER

The Eighteenth Annual Congress of the United States and Canadian Sections of the International College of Surgeons will open at the Waldorf-Astoria in New York on Sunday evening, September 13, with a session open to the public on the "International Surgeons' Hall of Fame" with Dr. Richard H. Shryock, Director of the Institute of the History of Medicine of Johns Hopkins University, Baltimore, speaking on "Fame in Surgery." The scientific program will open on Monday morning, September 14, with a session on "Advances in the Treatment of Cancer," with Doctors Charles S. Cameron, of the American Cancer Society; Cornelius P. Rhoads, of the Sloan-Kettering Institute for Cancer Research; George N. Papanicolaou, of Cornell University Medical College; T. A. Watson, of Cancer Services for Saskatchewan; Komei Nakayama of Chiba (Japan) University Medical School, and George J. Papayannopoulos of Athens, Greece, among the speakers. Themes for the other general assemblies will include "Teamwork in Rehabilitation"; "Advances in the Treatment of Cardiopulmonary Diseases," "Advances in Thyroid Surgery," "Surgical Treatment of Intervertebral Disc Lesions," "Advances in Surgery of the Stomach and Intestines," "Advances in Surgical Treatment of Diseases of the Esophagus" and "Advances in Vascular Surgery."

Surgical specialties which will be represented by special sessions are the following: Colo-proctology, Neurosurgery, Obstetrics and Gynecology, Occupational Surgery, Ophthalmology, Orthopedic Surgery, Otolaryngology, Plastic Surgery, and Urologic Surgery. There will also be five sessions for Operating Room Nurses.

A Film Forum will be held on Monday evening; a Forum on Pharmacology in Surgery on Tuesday evening; the annual banquet on Wednesday evening; and the annual Convocation on Thursday evening. All of the sessions will be held at the Waldorf-Astoria except the Convocation which will be held in Carnegie Hall.

Dr. William R. Lovelace of Albuquerque, New Mexico, is President of the United States Section of the International College of Surgeons and Dr. Douglas U. McGregor of Hamilton, Ontario, is President of the Canadian Section. Dr. Horace E. Ayers of New York is General Chairman of the 1953 Congress and serving with him as co-chairmen are Doctors Henry M. Scheer of New York and Lyon H. Appleby of Vancouver, British Columbia.

INDUSTRIAL HEALTH INSTITUTE

The Institute of Industrial Health of the University of Cincinnati announces a course of instruction in *Occupational Skin Problems* to be presented jointly by the Division of Occupational Health of the Public Health Service, the Department of Preventive Medicine and Industrial Health, and the Department of Dermatology and Syphilology of the University of Cincinnati. It will be given during the week of October 12-16, 1953. The objective of this course is to give physicians a greater understanding of cutaneous problems of occupational origin.

The program will be divided into three daily sessions, consisting of morning lectures and clinical demonstrations, afternoon field instruction in industrial plants, and evening panel discussions. The didactic presentations will include a review of the anatomy, physiology and chemistry of the skin. Consideration will be given to the etiology, clinical appearance, diagnosis and treatment of occupational dermatoses. This will be supplemented by

(Continued on Page 774)

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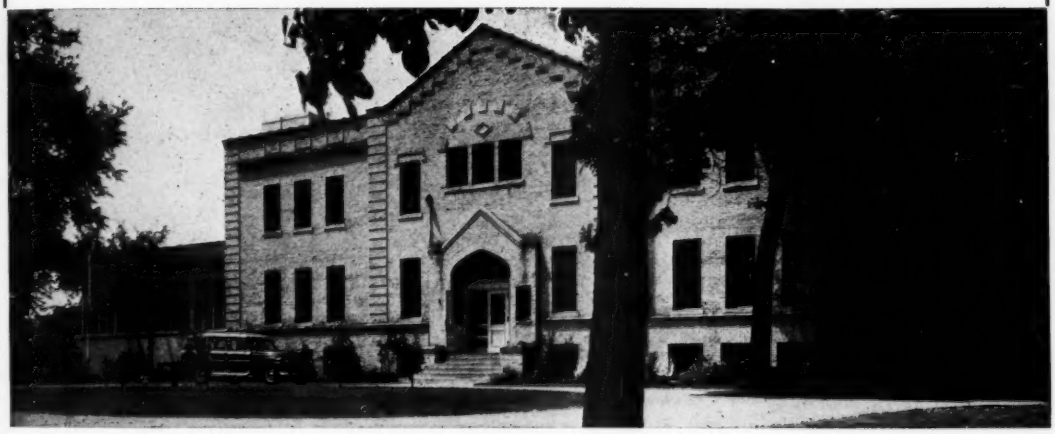

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Operating Room in Hospital	10.00	20.00	30.00	40.00
Anesthetic in Hospital	10.00	20.00	30.00	40.00
X-Ray in Hospital	10.00	20.00	30.00	40.00
Medicines in Hospital	10.00	20.00	30.00	40.00
Ambulance to or from Hospital	10.00	20.00	30.00	40.00
COSTS (Quarterly)				
Adult	2.50	5.00	7.50	10.00
Child to age 19	1.50	3.00	4.50	6.00
Child over age 19	2.50	5.00	7.50	10.00

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(Continued from Page 772)

discussions of specific measures of prevention and control. The evening sessions, in panel form, have been designed to present current information on the subjects of cutaneous cancer, cutaneous allergy, and medico-legal problems.

Dr. Louis Schwartz, former Chief, Industrial Dermatoses Section, U. S. Public Health Service, will be the guest speaker at the one dinner meeting. He will describe his personal experiences with these problems during the past twenty-five years.

Physicians interested in attending the course should write for application blank to Secretary, Institute of Industrial Health, Kettering Laboratory, Eden and Bethesda Aves., Cincinnati 19, Ohio. A registration fee will be charged and early application is advised since attendance will be limited.

AMERICAN COLLEGE OF SURGEONS

The Thirty-ninth Annual Clinical Congress of The American College of Surgeons will be held in Chicago, October 5-9, 1953.

The program will include scientific papers, panel discussions, symposia, surgical forums, medical motion pictures, color television, and exhibits. Headquarters will be the Conrad Hilton Hotel.

Dr. Harold L. Foss, president of The College for 1953, will preside at the opening evening session at which Dr. Fred W. Rankin, Lexington, Kentucky, will be installed as president for the year 1954. Dr. James Paterson Ross, of London, will give the Eighth Martin Memorial Lecture entitled "Science and Surgery."

UNIVERSITY HOSPITALS OPEN MULTIPLE SCLEROSIS CLINIC

A new clinic for diagnosis of a "mystery" disease which affects from six to eight thousand Minnesota citizens opened July 1 at University of Minnesota hospitals.

The disease—multiple sclerosis—is a puzzle. It usually strikes suddenly at any part of the nervous system. Symptoms vary, making it extremely hard to diagnose. In one person, it may cause double vision, in another, weakness of the arm or leg. Nobody knows what the cause is.

Most often multiple sclerosis hits young adults between eighteen and thirty-five. Attacks of the disease are generally temporary, but they recur from time to time. Dr. Abe B. Baker, head of the neurology division in University hospitals, the man who will direct the new clinic, points out that multiple sclerosis is not usually a fatal disease and in most cases causes only passing disabilities rather than complete invalidism of the patient.

"Our hope," Dr. Baker says, "in establishing this clinic is to make an accurate and early diagnosis of the disease. Multiple sclerosis is the hardest diagnosis in neurology. Because it's such an imposter, often resembling other diseases of the nervous system, it's even difficult for a specialist to detect."

The clinic—set up as a service rather than as a research center—will be in charge of Dr. Charles Van Buskirk, assistant professor of neurology. In addition

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to diagnosis, prescription of treatment and periodical check-ups, the center will also try out new treatments and diagnosis methods. It will use all facilities available at University hospitals.

The 1953 Minnesota legislature appropriated $10,000 a year for this year and next to the Minnesota chapter of the National Multiple Sclerosis society for establishment of the clinic. Mrs. Gordon Butler, Duluth, is chairman of the state group.

POSTGRADUATE ASSEMBLY IN ENDOCRINOLOGY AND METABOLISM

The Endocrine Society and the University of Minnesota announce a Postgraduate Assembly in Endocrinology and Metabolism for Physicians, the Sixth Annual Assembly sponsored by The Endocrine Society, which will be presented on the University of Minnesota campus from September 28 to October 3, 1953. Lectures will be held in the Museum of Natural History Auditorium, while the facilities of the immediately adjacent Center for Continuation Study will be available for demonstrations and for the accommodation of registrants for the course.

All aspects of clinical endocrinology and metabolism will be taken up, and recent important advances in the field will be stressed. Informative demonstrations and illustrative clinical cases will be presented, and ten panel discussions will provide registrants with opportunities to bring up special problems and questions. Each registrant will receive a booklet containing abstracts of all lectures.

Faculty for the Assembly includes outstanding authorities in the field of endocrinology from various parts of the country as well as members of the faculty of the University of Minnesota Medical School and the Mayo Foundation. The program will be presented under the direction of Dr. Edward C. Reifenstein, Jr., General Chairman for The Endocrine Society, and Dr. C. J. Watson, Professor and Head, Department of Medicine. Chairman of Local Arrangements on behalf of The Endocrine Society is Dr. Edmund B. Flink.

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

(Continued from Page 757)

performed on herself by Dr. Schmidt. Mrs. Dinsmore was placed on probation for three years.

The records of the Minnesota State Board of Medical Examiners show that Dr. Schmidt was born at Montrose, Minnesota, on May 20, 1881, and graduated from Hamline Medical School in 1908. Dr. Schmidt was licensed to practice in Minnesota in 1908. Dr. Schmidt appeared before the Minnesota State Board of Medical Examiners on May 22, 1953, in response to a citation requiring him to show cause why his medical license should not be suspended or revoked. The matter was taken under consideration and the action of the Medical Board will be announced at a later date.

Of General Interest

Dr. William F. Braasch, retired staff member of the Mayo Foundation and Mayo Clinic, was named chairman of the national campaign for the Greater University Fund drive of 1953. The drive got under way in May, with a goal of $130,000.

* * *

Dr. Lyle Benson, of Tracy, left in June to practice at Springfield, Oregon. **Dr. Norman Lee** and **Dr. W. G. Workman,** with whom Dr. Benson had been associated, will continue to operate the local clinic without the addition of a new doctor for a time.

* * *

Dr. L. J. Hoyer, of Windom, was named chief of staff of the Windom Hospital, and **Dr. L. Sogge,** secretary, at the meeting held May 13 to elect officers for the coming year. The Windom Hospital staff includes all of the Windom doctors and **Dr. Robert R. Sawtell,** of Jeffers.

* * *

Dr. John K. Grotting, Minneapolis, has opened a new office at 948 Medical Arts Building, Minneapolis, for the practice of plastic and reconstruction surgery.

* * *

Dr. Walter S. Neff, staff member of the Lenont Peterson Clinic in Virginia, was elected May 19, to three years as one of the Directors of Independent School District No. 22.

* * *

Dr. William Sawyer Eisenstadt, of Minneapolis, addressed the Southeastern Section of the American Academy of General Practice, May 26, at Lake City Dr. Eisentadt's topic was "The Management of Status Asthmaticus."

* * *

Dr. E. F. Beyer, of Braham, who recently left to serve with the Army Medical Corps, was honored by the Braham community May 11, at a smorgasboard. Dr. Beyer left May 26, to report to Brook Army Medical Center at Fort Sam Houston, San Antonio, Texas. **Dr. W. T. Nygren,** with whom Dr. Beyer was associated, will practice alone for several months until a young doctor from Duluth joins him.

* * *

Dr. J. Y. Feinstein, Minneapolis, spoke at the "60-Over Club" held at the Minneapolis Public Library, May 22. Dr. Feinstein's topic "Guard Your Health," included the showing of a film.

* * *

Dr. Victor Johnson, of Rochester, was named a member of the committee on medical education and hospitals until 1958, at the annual election of the American Medical Association, held June 4, in New York, New York.

* * *

Twenty ex-presidents of the Minnesota State Medical Association were honored at the Association's annual meeting held May 17, 18, and 19. The honored physicians were: **Drs. W. F. Braasch,** Rochester, president in 1927; **S. H. Boyer,** Duluth, 1930; **L. L. Sogge, Windom,** 1931; **M. S. Henderson,** Rochester, 1932; **N. O. Pearce,** Minneapolis, 1933; **F. J. Savage,** Saint Paul, 1934.

Also **Drs. W. W. Will,** Bertha, 1935; **J. M. Hayes,** Minneapolis, 1938; **George A. Earl,** Saint Paul, 1939; **B. S. Adams,** Hibbing, 1940; **H. Z. Griffin,** Rochester, 1942; **S. H. Baxter,** Minneapolis, 1943; **W. Mendelssohn Jones,** Saint Paul, 1944.

Also **Drs. E. L. Touhy,** Duluth, 1945; **Edwin J. Simons,** Saint Paul, 1946; **Louis A. Buie,** Rochester, 1947; **E. M. Hammes,** Saint Paul, 1949; **E. J. Elias,** Duluth, 1950; **J. F. Norman,** Crookston, 1951, and **R. L. J. Kennedy,** Rochester, 1952.

* * *

Dr. F. Donald Bucher, of Starbuck, was called to active duty with the U. S. Navy, in June. Dr. Bucher, who has practiced in the Starbuck community since July 1949, reported to Norfolk, Virginia, June 8.

* * *

Dr. Walton Lillehei, associate professor of the Department of Surgery, University of Minnesota Medical School, was the featured speaker at the meeting of the Southwestern Minnesota Medical Society and Auxiliary, held May 11, at Ehlers Steak House in Worthington. Dr. Lillehei's topic was "Considerations in the Diagnosis and Surgical Treatment of Heart Disease."

* * *

Dr. C. S. Donaldson, of Foley, was presented with a plaque by James Tillet at a testimonial dinner given in honor of the doctor, May 7. Tillet was the first of over 2000 babies delivered by Dr. Donaldson in his twenty-six years of service in the community.

* * *

Dr. C. O. Lindberg, formerly of Grantsburg, Wisconsin, joined the Federal Hospital at Sandstone in May.

* * *

Dr. Robert D. Letson, of Minneapolis, became engaged to Patricia Andersen also of Minneapolis, in May. Dr. Letson was graduated from the University of Minnesota Medical School and is completing his internship at Minneapolis General Hospital.

* * *

Capt. Francis L. Stutzman (MC), Newport, recently a staff surgeon at the Minneapolis Veterans Administration Hospital, arrived in Germany in May where he has been assigned as chief surgeon for the Port U. S. Army Hospital.

* * *

Dr. J. G. W. Havens, and **Dr. Garfield E. Hertel,** of Austin, and **Dr. George R. Melzer,** of Lyle, were granted life memberships in the Minnesota State

(Continued on Page 778)

ABOUT MUNICIPAL BONDS

Investors who have purchased Municipal Natural Gas Revenue Bonds and have been enjoying generous "Tax-exempt" income from their investments are familiar with the progress and operating results of their systems. Those who have adopted a "wait and see" attitude concerning gas revenue bonds might be interested in some results.

ATMORE ALABAMA issued $325,000 bonds in 1946, completed the first year of operation in 1948. By the *second* year net income was equal to the average annual amount necessary to pay bonds and interest and income is now more than *twice* that amount. An estimated 418 customers would keep the system on a paying basis —there were 1078 users last December.

BREWTON ALABAMA issued $530,000 bonds simultaneously with Atmore, is also now earning more than *twice* the annual amount necessary to cover bond and interest payments.

TALLASSEE ALABAMA issued $355,000 bonds in 1948, completed its first year in 1949. The number of customers is already *three* times the minimum estimated number and last year's income was almost *three* times the annual amount necessary to pay bonds and interest.

PLEASANT GROVE ALABAMA issued $700,000 bonds in 1948, completed its first year in 1950. It is running far ahead of minimums and has retired $25,000 bonds in advance of maturity by calling them in at the call price ($1,040 each).

DICKSON TENNESSEE issued $385,000 bonds in 1949, completed its first year in 1951. In its second year the system had net revenues well in excess of the average amount necessary to pay bonds and interest each year.

MONROE GEORGIA issued $345,000 bonds in 1951, will not complete its first fiscal year until December, 1953. Net earnings for eleven months, however, are reported equal to the average annual amount of bond and interest payments.

MENA ARKANSAS issued $1,423,000 bonds in 1951 and the system was completed officially in February, 1953. By April there were almost as many gas users as the minimum number required to meet all payments over the life of the bonds.

THE DEKALB-CHEROKEE COUNTIES GAS DISTRICT ALABAMA issued $2,100,000 bonds this spring and the system is now under construction, The engineer estimated 1877 gas users would provide sufficient income to meet minimum payments and the District has now received applications for service from more than 2,175 potential customers.

We have recently purchased a new issue of $610,000 Cochran, Georgia, Natural Gas Revenue Certificates to provide natural gas to the City and the surrounding area—an estimated population of 5,800.

Cochran is the county seat and largest community in Bleckley County; the City enjoyed a population growth of 48% from 1940 to 1950. The City has received over 600 applications for service, each accompanied with a $5 deposit. The engineer estimates that only 550 are required to pay bonds and interest as they mature.

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(Continued from Page 776)

Medical Association, having completed at least forty years in medical practice and having attained the age of seventy or older.

Dr. Harold J. Anderson, president of the Mower County Medical Society, presented the three doctors with their life certificates at a banquet held in their honor, May 13. Three Rochester doctors who took part in the ceremony were: **Dr. John Waugh,** district representative of the State association; **Dr. John Stickney,** who will soon become district representative, and **Dr. R. L. Kennedy,** past president of the County Society.

Local fellow physicians spoke, giving summary biographies of the three honored doctors. **Dr. Paul Leck,** of Austin, for Dr. Hertel; **Dr. P. A. Lommen,** Austin, for Dr. Havens, and **Dr. Conrad B. Frydenlund,** Lyle, for Dr. Melzer.

* * *

Recipients of Special Hospital Awards presented at the 100th Anniversary dinner of St. Joseph's Hospital were: **Dr. George E. Sherwood,** Kimball, who interned at St. Joseph's Hospital from 1893 to 1894; **Dr. James C. Ferguson,** Saint Paul, who served fifty years on the hospital staff; **Dr. F. C. Schuldt,** Saint Paul, forty-two years on the staff, and **Dr. E. C. Eshelby,** Saint Paul, sixty years of service on the hospital staff. **Dr. L. A. Nelson,** Saint Paul, unable to attend in person, also received a special service award.

* * *

Mrs. Henry W. Quist, Sr., of Minneapolis, took office May 19, as the new president of the women's auxiliary to the Minnesota State Medical Association, succeeding **Mrs. C. L. Sheedy** of Austin. **Mrs. P. S. Rudie,** Duluth, was named president-elect to follow Mrs. Quist in 1954. Other officers named were: **Mrs. C. L. Oppegard,** Crookston; **Mrs. Andrew Christianson,** Saint Paul, and **Mrs. L. P. Howell,** Rochester, vice presidents; **Mrs. David Halpern,** Brewster, recording secretary; **Mrs. C. W. Froats,** Saint Paul, treasurer, and **Mrs. J. K. Butler,** Cloquet, auditor.

* * *

Dr. G. V. H. Kleifgen, of Park Rapids, closed his office June 15, to leave for duty with the Army Medical Corps.

* * *

Dr. Randall G Sprague, of the Mayo Clinic, was elected president of the American Diabetes Association, in New York, June 4.

* * *

A random selection of family doctors—**Dr. E. E. Dady,** Minneapolis; **Dr. Frank Naegeli,** Fergus Falls; **Dr. R. E. Flynn,** La Crosse, Wisconsin; **Dr. T. J. Jensen,** Duluth; **Dr. L. L. Sogge,** Windom, and **Dr. Johannes C. Jacobs,** Willmar—interviewed as they visited exhibits at the 100th annual meeting of the Minnesota State Medical Association, all said that they would choose the same profession if they had it all to do over again—even with their week

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* * *

Winners of first place awards in the Physicians Art and Hobby show on display at the 100th annual meeting of the Minnesota State Medical Association were: **Dr. J. P. Wendland,** Minneapolis, photography; **Dr. Daniel deGallier,** Minneapolis, water color; **Dr. Harold Rothschild,** Saint Paul, drawing; **Dr. James Benepe,** Saint Paul, oils; **Dr. James Berens,** Rochester, handicraft; **Dr. Robert Wilder,** Minneapolis, sculpture, and **Dr. Alex Ratelle,** Saint Paul, popular vote of convention visitors for his "Portrait of a Lady."

* * *

Dr. John L. Emmett, of the Mayo Clinic, spoke at the Upper Peninsula Medical Society (Michigan) meeting, held June 19 and 20, in Escanaba, Michigan.

* * *

Dr. Bernard Zimmermann, University of Minnesta Medical School cancer co-ordinator, has been awarded a three-year grant for study, by the American Cancer Society. The grant totalling $18,000, will permit Dr. Zimmermann to carry out research under the direction of **Dr. Owen H. Wangensteen,** head of the department of surgery, University of Minnesota Medical School.

Dr. Zimmermann will conduct studies of the endocrine physiology and metabolic balance in relationship to clinical cancer and cancer surgery.

Dr. Bryson McHardy joined **Dr. R. B. Skogerboe** on the Karlstad Hospital staff, July 1. Dr. McHardy replaces **Dr. Robert Hines** who left the community to return to school and the study of internal medicine.

* * *

Speakers on the program at the Olmsted-Houston-Fillmore-Dodge County Medical Society meeting, held May 6, in Rochester, included **Dr. D. T. Carr,** speaking on "Prognosis in Sarcoidosis;" **Dr. O. E. Hallberg,** "Points to Remember When Treating Severe Epistaxis," and **Dr. J. M. Waugh,** "The 1953 Budget of the Minnesota State Medical Association."

* * *

Drs. A. B. Baker, Donald W. Hastings, William Schofield, Conrad I. Karleen, Lawrence R. Boies, Sidney K. Shapiro, Harry B. Hall, Edward T. Evans, Joseph A. Resch, and **Frederic J. Kottke,** were guests of the Minnesota Chapter, National Association of Claimants' Compensation Attorneys, at a dinner meeting, held May 23, in Minneapolis. The physicians answered questions concerning medical aspects of injuries which are frequent subjects of litigation.

* * *

Dr. Robert T. Patrick, of the Mayo Clinic, spoke to the anesthesia group at the national convention of the Catholic Hospital Association and the meetings of nine associated groups May 23 to May 28, in Kansas City, Missouri. Dr. Patrick's topic was "The Post Anethesia Observation Room."

Dr. A. P. Goblirsch, of Sleepy Eye, was elected president of the Redwood County Community Chest,

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Dr. L. R. Gowan, M.D., M.S., Medical Director

at the meeting held May 14, at Wabasso, to elect officers and make campaign plans for the fall drive.

* * *

The first annual B. B. Vincent Lyon Award for the best paper presented at the meeting of the American Gastroenterological Association by an associate member, was given to **Drs. W. H. Dearing Jr., F. R. Heilman,** and **W. G. Sauer,** all of Rochester. Their paper was entitled "Micrococcic (Staphylococcic) Enteritis Following the Use of Aureomycin or Terramycin," and was presented by Dr. Sauer at the meeting of the Association held early in May at Atlantic City.

* * *

Dr. Maxwell M. Barr, Minneapolis, was elected medical director of the Hennepin County League for Planned Parenthood, May 19. He succeeds **Dr. C. J. Ehrenberg,** who retired after fourteen years as medical director of the planned parenthood group.

* * *

Dr. Henry B. Blumberg, of Fairmont, was appointed chairman of the Fairmont Youth Activities Assembly Health Committee, May 21. Dr. Blumberg's duties center around local health promotion based on the Youth Conservation Commission report and suggestions made to his committee.

* * *

Dr. Richard O. Juliar closed his office in St. Clair early in June, after fifty years of practice in the community. Living in the St. Clair community as a child, Dr. Juliar attended country school and was graduated from Mankato High School in 1896. He was graduated from the University of Minnesota Medical School in 1903. Dr. Juliar practiced ten years in the northern Minnesota communities of Mahnomen and Middle River before again settling in St. Clair in 1913. Dr. Juliar left June 10, for Los Angeles, California, where he and his wife will make their home.

The St. Clair community is now without a physician.

* * *

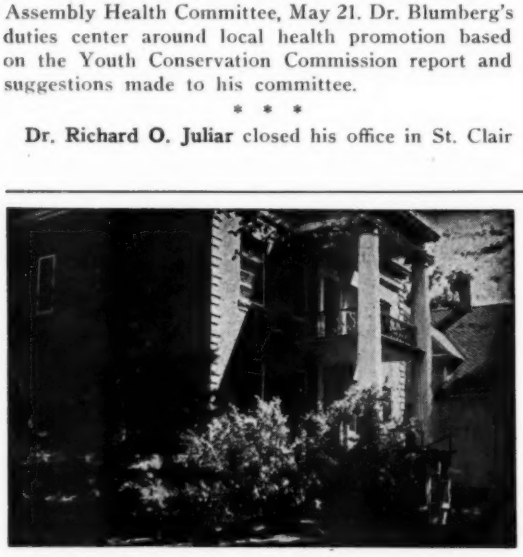
Physicians from the Mayo Clinic cited for their exhibit on diseases of the mitral value at the American Medical Association convention in New York, New York, June 1-5, were **Drs. T. J Dry, R. L. Parker, J. E. Edwards, J. W. Kirklin, R. D. Pruitt, G. W. Daugherty, C. H. Schiefley, A. J. Bruwer, R. G. Tompkins,** and **A. H. Bulbulian.**

* * *

Dr. William Halme, of Wadena, left for active duty wiith the Army Medical Corps reporting to Brooks Hospital, San Antonio, Texas, May 25.

* * *

Dr. James W. Halvorson, of Goodhue, who has practiced in the Goodhue community since July,



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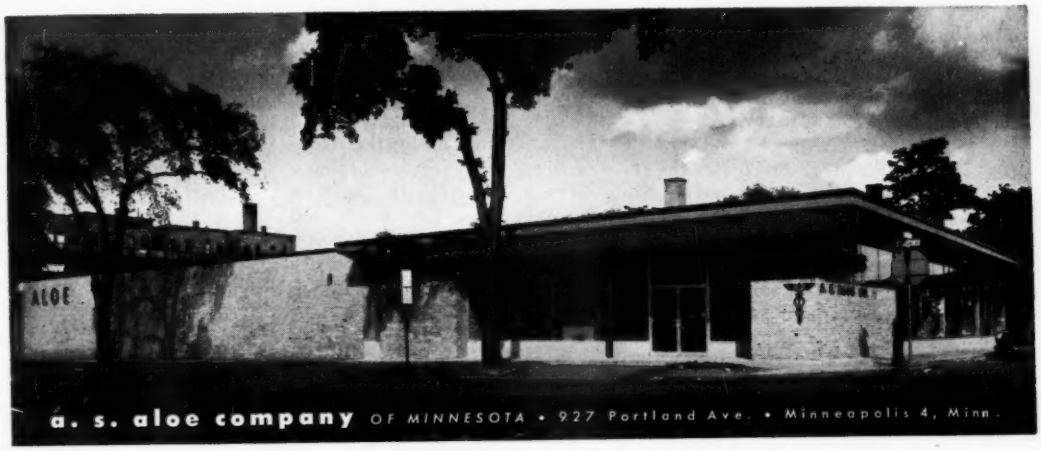

1950, was recalled to active duty with the United States Navy in June.

Dr. James De Geest, recently graduated from the University of Minnesota Medical School, took over Dr. Halvorson's practice, July 6. Dr. De Geest completed his intership at Minneapolis General Hospital. During World War II, he served in the Navy Air Corps at Alameda, California, and at Okinawa. He was discharged in 1947.

* * *

Dr. Bela Gallo, recently licensed in the State of Minnesota, began practice at Lake Bronson in June.

* * *

Dr. Herman E. Hilleboe, former chief of the Tuberculosis and Crippled Children's programs of the State of Minnesota, was granted an honorary degree from the University of Rochester, New York, May 31. Dr. Hilleboe is at present, commissioner of health of the New York State Public Health Department.

* * *

Dr. Harry H. Larson, who recently completed his intership at St. Luke's Hospital, Duluth, joined the Northland Clinic at Rice Lake, Wisconsin, July 1.

* * *

Dr. V. P. Hauser, of Saint Paul, won the Ramsey County Medical Assembly and Forum golf tournament, June 3, held at the White Bear Yacht Club, with a score of eighty. **Dr. W. F. Hartfiel** and **Dr. P. F. Donohue,** Saint Paul, tied with eighty-one's. and **Dr. A. E. Venables** finished with an eighty-two.

* * *

Dr. Edgar E. Heller, of Mankato, was presented with an award May 18, for meritorious service in Korea, before the students of the Command and General Staff School of Mankato, which is affiliated with the 5951 USAR School. The citation reads, in part, ". . . As commanding officer and medical officer of three widely separated medical detachments, Lieutenant Heller traveled many miles over rough terrain to carry out his assignment in the most effective possible manner. Untrained in Army administrative routine, he nevertheless devised methods which enabled him to supervise the operation of the three detachments with great efficiency . . ."

Dr. Heller is associated in practice with **Dr. R. W. Kearney** in Mankato.

* * *

Dr. G. L. Barnett, who practiced in the Graceville area for the past five years, left in May for active military duty. Dr. Barnett reported to Fort Sam Houston, San Antonio, Texas, for an indoctrination course in the Army Medical Corps.

* * *

Dr. William T. McKenna, of Austin, presented a scientific paper entitled, "The Significance of the

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Pulmonary Arterial Wedge Pressure," at a meeting of the Minnesota Society of Internal Medicine, held at the University of Minnesota, May 23.

* * *

Dr. Albert Fritsche, of New Ulm, spoke on "Medical Guidance of Parents Education Program," at a Parent Education conference sponsored by the State Public Health Nursing Service, held at the Center for Continuation Study at the University of Minnesota, May 22 and 23.

* * *

Dr. Dean S. Fleming, director of the state division of disease prevention and control, State Health Department, and **Dr. Willis E. Dugan,** State March of Dimes chairman, were guest speakers at a meeting of Minnesota women, sponsored by the National Foundation for Infantile Paralysis, June 4, in Minneapolis. One of the objectives of the conference was to provide foundation leaders and committee chairmen with data for use in the event of a polio outbreak.

* * *

Dr. James Dokken, having recently completed his internship at Mt. Sinai Hospital, Minneapolis, began practice in Windom, July 1.

* * *

Dr. Richard Henry Troup, of Rochester, was married to Mary Ann Grottum, of Jackson, May 23, at the Rochester Congregational Church. Dr. Troup is the son of Dr. and Mrs. Ralph L. Troup, of Green Bay, Wisconsin, Mrs. Troup, the daughter of State Senator and Mrs. B. E. Grottum, of Jackson. Thomas J. Troup of Des Plains, Illinois, attended his brother as best man; **Dr. John Kelley,** and **Dr. Joseph Grace,** both of Rochester, were ushers.

* * *

An outline of the activities and problems of the Austin Public Health Department was presented by **Dr. T. M. Seery** at the meeting of the Business and Professional Women's Club, held May 19, in the Episcopal Church in Austin.

* * *

Dr. T. B. Magath, of Rochester, was presented with the Award of Merit by Millikin University, Decatur, Illinois, at its annual commencement, May 25, in recongnition of his position in the field of medicine. Dr. Magath received his master's degree at Millikin University.

* * *

Dr. David Feigal, of Wayzata, was called to active duty with the U. S. Air Force and reported to Montgomery, Alabama, June 29, for an indoctrination course. Dr. Feigal has been practicing with **Dr. W. W. Rieke,** in Wayzata, since 1949.

* * *

Winning awards for exhibits presented at the meeting of the American Urological Association held recently in St. Louis, Missouri, were: **Dr. O. S. Culp** and **Dr. H. De Weerd,** of Rochester, first place for new procedures and apparatus with their exhibit, "A Pelvic Flap Operation for Certain Types of Ureteropelvic Obstruction," and **Drs. K. G. Wakim, M. A. Block, F. C. Mann,** and **W. A. Bennett,** all of Rochester, first place for laboratory research with their exhibit, "Pathogenesis of Acute Renal Insufficiency."

* * *

Dr. Lyle Hay, University of Minnesota and Veterans Hospital, Ft. Snelling, staff, and **Dr. David H. Eisenstadt,** also of the University staff, presented scientific papers at the meeting of the Southeastern Minnesota Academy of General Practitioners, held May 26, in Lake City. "Varicose Veins." was the topic of the paper given by Dr. Hay, and "Acute Asthma," by Dr. Eisenstadt.

* * *

Dr. B. J. Hughes, formerly with the Veterans Hospital, Ft. Snelling, opened an office for private practice in Brainerd, the end of May.

* * *

Dr. James Nixon, Lieutenant, U. S. Naval Reserve, of Crosby, left for active military service in June. Lt. Nixon reported to the Naval Supply Depot, San Diego, California, June 30.

* * *

Physicians from Minneapolis who moved into the Dakota-Lake Medical Building in St. Louis Park in June were **Dr. Maxwell M. Barr,** Obstetrics and gynecology; **Dr. Norman B. Bloom,** surgery; **Dr. Earl Hill,** medicine, and **Dr. Ellis Ellison,** ear, nose and throat. **Dr. M. E. Craig,** pediatrician, has had her office in the building for some time.

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Dr. I. G. Wiltrout, of Oslo, was presented with a new car, to show appreciation for the services and work he has done for the Oslo Legion and the people of the community, at the Memorial Day services held in the Oslo Legion Hall, May 30.

* * *

Dr. Glenn P. Schmitz, of Little Falls moved into his new eighteen-room Broadway Clinic building on East Broadway in Little Falls, early in June.

* * *

Dr. M. E. Knapp, of Minneapolis, gave the last in a series of medical lectures sponsored by the Veterans Administration in Billings, Montana. Dr. Knapp's address was given June 12, and he spoke on "Physical Medicine and Rehabilitation as Applied in General Medicine."

* * *

Dr. Paul G. Quie, of Northfield, who was graduated from the Yale School of Medicine, New Haven, Connecticut, June 8, was awarded the Miriam K. Dasey award, given each year to the graduating student who "shows promise of fulfilling the idea of a compassionate physician."

* * *

Dr. Robert G. Hinckley, Associate Professor of Psychiatry and Senior Psychiatrist, University of Minnesota Mental Hygiene Clinic for students, was one of the guest lecturers at the Veterans Administration Conference of Chiefs of Professional Services held at Downey, Illinois, June 24 through 26, 1953. Dr. Hinckley's lecture, given on June 24, was entitled "Group Psychotherapy with Chronic Psychiatric Patients."

* * *

Dr. J. Gordon Beaton, of Northfield, gave a "Classification" talk to the members of the Northfield Rotary Club, May 28. Dr. Beaton, a specialist in internal medicine, explained the various study and training requirements for a medical degree and advanced degrees in the specialties.

* * *

Dr. John H. O'Leary, associated with the Starekow Clinic in Thief River Falls for the past three years, left June 15, to join a clinic in Havre, Montana.

* * *

Dr. Claude R. Hitchcock, director of the cancer detection center at the University of Minnesota, addressed the physicians of Morris and surrounding area, June 10, at the second West Central Minnesota seminar.

* * *

Dr. Louis L. Freidman, of Saint Paul, participated in the First World Congress of Sterility and Infertility, held in New York, New York, May 25 through 31, 1953. Dr. Freidman presented a paper entitled, "Pregnancies Following Timing Ovulation with Insemination."

* * *

Dr. Richard V. Ebert, professor of Medicine, University of Minnesota, will leave September 1 to become professor of medicine at Northwestern University and chief of medicine at the Veterans Research Hospital in Chicago.

* * *

Dr. Carleton B. Chapman, associate professor of medicine, University of Minnesota, left early in July to become a professor of medicine at Southwestern University Medical School at Dallas, Texas. Dean at Southwestern is Dr. N. George Aagaart, former director of continuation of medical education at the University of Minnesota.

* * *

Dr. C. W. Mayo, of Rochester, presented awards and scholarships at the St. Mary's School of Nursing graduation, held June 7, in the St. Mary's Hospital auditorium.

* * *

Dr. Thomas Smersh, of Minneapolis, is assuming the practice of **Dr. F. Paul Kortsch,** of Prior Lake, during the latter's convalescence. Dr. Kortsch is in St. Barnabas Hospital, Minneapolis, after suffering a heart attack late in May.

* * *

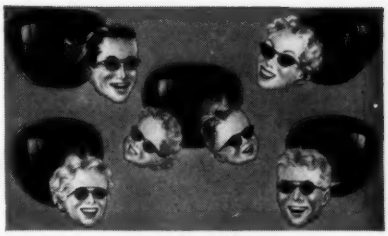
Dr. R. F. Pierson, of Slayton, attended the Cook County Graduate School of Medicine during the week of June 15.

* * *

Dr. Stephen M. Brzica, of Worthington, left his practice there to become associated with Dr. Robert Quinn in the Sioux Falls Clinic, Sioux Falls, June 10.

* * *

Dr. George Van Rooy was named president of the medical staff of Northwestern Hospital at Thief River Falls, at the regular meeting held June 8.



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* * *

Dr. Barbara Anne Burke, of Minneapolis, who recently graduated from Women's Medical College of Pennsylvania, Philadelphia, received the Albert Einstein Medical Center award for having the highest scholastic average in the graduating class over a four-year period. Dr. Burke is interning at Philadelphia General Hospital.

* * *

Dr. Victor Johnson, of Rochester, director of the Mayo Foundation, has been named a member of the American Medical Association's committee on medical education and hospitals. Dr. Johnson was named to the committee, June 4, at the annual election of the American Medical Association, held during the 1953 convention in New York, New York.

* * *

Dr. Miland E. Knapp, chief of physical medicine and in charge of training and treatment at the Kenny Institute, presented certificates to eleven physical therapists, June 9, at the Elizabeth Kenny Institute graduation exercises held at Westminster Presbyterian Church.

* * *

An award of merit from the Minnesota Heart Association was presented June 2, to **Dr. and Mrs. B. J. Cronwell,** of Austin, by the organization's executive secretary. The citation was in recognition of their "public spirit in working for reduction of the ravages of heart disease." Others who received the merit awards from the Heart Association are **Dr. and Mrs. Herman Miller,** Grand Meadow; and **Dr. C. B. Frydenlund, Lyle.**

* * *

Dr. Albert I. Balmer, of Pipestone, left his practice to begin a residency in radiology at the Charles T. Miller Hospital, Saint Paul, July 1. **Dr. Russell J. Kotval,** who has practiced in Pipestone since 1948, took Dr. Balmer's place in practice with **Dr. C. A. Williams.**

* * *

An award for "distinguished service in medicine" was presented by the alumni association of the University of Kansas, to **Dr. Elwood A. Sharp,** director of clinical investigation for Parke Davis and Company. Dr. Sharp developed Ventriculin for the specific treatment of pernicious anemia and played an important role in the development of other medicines, including Antruitrin and Thielin.

On June 1, 1953, **Dr. Lillian L. Nye,** of Saint Paul, was presented a Certificate of Merit from the University of Minnesota for her valuable contributions to the University. The Certificate was presented by the president of the University, Dr. J. L. Morrill, at the Coffman Memorial Union, in the presence of relatives, colleagues, and friends. The presentation ceremonies were recorded and broadcast in the evening over station KUOM.

From 1907 to 1915, Dr. Nye was on the School of Chemistry faculty of the University, and from 1921 to date, has been on the faculty of the Medical School in the Department of Pediatrics, successively as clinical instructor and Clinical Assistant Professor of Pediatrics. From June 30, 1953, she had held the rank of Emeritus Clinical Assistant Professor of Pediatrics.

* * *

Dr. E. Mendelssohn Jones, chief of the surgical division of the staff of the Ancker Hospital, Saint Paul, since 1948, was recently elected chief emeritus of the section by the staff members. Dr. Jones has been a member of the Ancker Hospital surgical staff since 1918 and has given devoted service to the hospital for the past thirty-four years. In 1951, Dr. Jones was honored at a testimonial dinner tendered him by the surgical staff of the hospital.

Dr. Jones is a past president of the Ramsey County Medical Society (1928), the Minnesota State Medical Association (1944), and the Minnesota Academy of Medicine (1937). He was recently elected secretary of the State Board of Medical Examiners.

* * *

Democracy in action exemplified in a new motion picture film—"A Citizen Participates"—shows how members of a rural community can work together to get a physician. Produced by the Centron Corporation and cleared by the American Medical Association, this film should be a valuable public relations tool for state and county medical societies. The film may be obtained on loan from Young America Films, Inc., for showings to various organizations and business groups in your community. Running time—twenty-seven minutes. For further information contact: Young America Films, Inc., 18 East 41st Street, New York 17, N. Y.

* * *

More than one million dollars has been donated to medical education by physicians in the United States since the first of the year. Reports released by the American Medical Education Foundation indicate that approximately 11,000 physicians have contributed $800,000 to the Foundation since January 1. At the same time, records from thirty-three of the nation's seventy-nine accredited medical schools show that 8,217 doctors have contributed $301,426.42 directly to their alumni organiza-

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tions. These figures indicate that 9.9 per cent of the nation's physicians have given in excess of one million dollars this year to help alleviate the financial stress in medical education today.

* * *

The Crippled Child, published bi-monthly by the National Society for Crippled Children and Adults, will change its approach after its thirty years of existence. The magazine will be directed to the parents of the crippled child who are so responsible in meeting the new and difficult problems of adjustment particularly in the home. Two new editors have been added to the staff of the magazine: Earl S. Miers, a well known author and lecturer and a member of the executive committee of the National Society, and Dr. Noah D. Falricant, a well known medical writer as an associate editor of the *Journal of the American Medical Association.*

* * *

Dr. Byrl Kirklin, department of radiology, and **Dr. Frank Krusen,** head of the section on physical medicine, both of the Mayo Clinic, were among those named June 18, to serve as senior civilian consultants to the surgeon general of the Army.

* * *

Dr. E. G. Howard, of Hayfield, began practice in Spring Valley, August 1. Dr. Howard had practiced at Hayfield for a year and a half following his separation from the Navy.

* * *

Dr. Julius Buscher, of St. Cloud, is the author of the novel *The Doctor's Last Message,* which was published in June by Exposition Press, Inc., New York, New York. Dr. Buscher was born in Osnabrueck, Germany, and received his medical degree in Heidelberg. Licensed in Minnesota in 1924, he has been practicing in St. Cloud for more than twenty-five years.

* * *

Dr. Gordon Erik Johnson, of Minneapolis, recently graduated from the University of Minnesota Medical School, was married June 20, to Shirley Ann Marshall, of Sibley, Iowa. Dr. Johnson is interning at St. Luke's Hospital, Duluth.

* * *

Dr. Robert Shragg, who recently completed his internship at Minneapolis General Hospital, joined **Dr. William Thomas,** of Howard Lake, in practice, July 1.

* * *

Dr. F. F. Callahan, state tuberculosis control officer and **Dr. Ezra Bridge,** Cannon Falls sanatorium, were among those named by Gov. C. Elmer Anderson to a nine-member commission studying facilities for treatment of tuberculosis in Minnesota.

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Dr. Douglas Perkins, recently graduated from the University of Minnesota Medical School, joined the staff of the Alexandria Clinic, July 1. The association of Dr. Perkins with the clinic brings the number of staff physicians to seven, with one, **Dr. Peter M. Geiser,** now on leave of absence with the Army Medical Corps.

* * *

Guest speakers at an "alumni reunion" of former patients of Ah-Gwah-Ching Sanatorium, included **Dr. F. F. Callahan,** former superintendent of the sanatorium and now director of medical services of the State Division of Social Welfare; **Dr. T. J. Kinsella,** Minneapolis surgeon who pioneered many of the surgical techniques now used in the treatment of tuberculosis, and Helmer Gunnarson, of the State Rehabilitation office.

* * *

Dr. Richard Nicholson, of Peterson, Iowa, began medical practice in Heron Lake, July 1. Dr. Nicholson was graduated from Harvard Medical College and has spent seventeen months in military service during World War II.

* * *

Dr. J. L. Emmett, of the Mayo Clinic, presented several papers at the fifty-eighth anniversary meeting of the Upper Peninsula Medical Society, held in Escanaba, Michigan, June 20.

Dr. Russell A. Johnson of Grand Rapids, recently graduated from the University of Minnesota Medical School, began July 1, a year of service with the United States Public Health Service. Dr. Johnson has been assigned as assistant surgeon at the U. S. Public Health Service Hospital in San Francisco, California.

* * *

Dr. Fred W. Rankin, of Lexington, Kentucky, formerly of Rochester, will be installed as president of the American College of Surgeons, at the meeting to be held in Chicago, October 5-9.

* * *

Dr. A. A. Schmitz, head of the staff of the new St. Joseph's Hospital, Mankato, presented a gift from the staff to Sister Margaret, Sister Superior who left June 18, for a new assignment in New Jersey. An informal reception was held in honor of Sister Margaret, in the hospital cafeteria.

* * *

MINNESOTA BLUE CROSS-BLUE SHIELD

Never before has the attendance or interest of physicians or their office personnel reached such high levels as were experienced in the Blue Cross-Blue Shield booth at the recent annual meeting of the Minnesota State Medical Association. The records show that 258 participating physicians visited the booth and signed cards requesting a Blue Shield plaque, and a great many more doctors stopped at the booth for information or discussion of their Blue Shield problems. Besides the professional group which included many residents, interns, and out-of-state doctors, quite a few members of doctors' office staffs visited and were able to obtain specific information regarding the procedures involved in filing Blue Shield claims. In attendance for Blue Shield during the entire convention were either the manager of the Claims Department or the manager of the Professional Relations Department to discuss all of the problems or questions which the doctors or members of their office staffs might raise. In addition, a member of the claims examiner staff was present much of the time to answer questions regarding filing and processing of Blue Shield claims. A member of the Blue Cross personnel was also in attendance at the booth during the convention, and it was very encouraging to note the interest shown by the doctors for adequate Blue Cross protection both for their patients and themselves. Interest was especially shown on the new $25 Deductible Blue Cross contract.

During the meetings, the Professional Relations Department displayed a new Blue Shield plaque which is being offered without charge to all participating physicians or clinics for their offices or reception rooms. The plaque consists of a blue shield with a central caduceus on a gray wooden background, and on the face of the shield are printed the words, "Participating Doctor of Medicine, Minnesota Medical Service, Inc." The plaque met with a very gratifying and enthusiastic acceptance from the doctors who visited the booth and 258 of them signed cards requesting a plaque for prominent display in their offices. Frequently, it was mentioned that very often people want to know whether or not a doctor is a participating physician in Blue Shield. This is corroborated by the relatively large number of inquiries received at the Blue Shield office from subscribers asking, "How can I tell if a doctor is participating or not?" It appears that more patients are asking this question every day. The use of the participating physician plaque provides the answer and does it in a manner which is attractive.

Since it is the desire of Blue Shield that every participating physician have the opportunity to obtain a plaque, those doctors who were unable to visit the Blue Shield booth during the recent meeting may now send either a letter or post card to the Professional Relations Department, Minnesota Medical Service, Inc., 2610 University Avenue, St. Paul 14, Minnesota, requesting a plaque for prominent display in their office. Delivery of the plaque will be made just as soon as they are received from the manufacturer.

The meeting also provided a good opportunity for the Professional Relations Program of Blue Shield to initiate a free exchange of ideas, suggestions, and information between Blue Shield and the participating doctors of medicine. Discussion with the many and various physicians was extremely encouraging in demonstrating the solidarity of the medical profession in support of the Blue Shield Plan. The importance of Blue Shield in modern medical economics as well as its future development and goals were frequently stressed by the doctors themselves, and valuable information and suggestions were obtained from the visiting doctors. In addition to obtaining suggestions from the physicians, the primary theme at the Blue Cross-Blue Shield booth was one of service to the doctors and their staffs. In this regard, a wealth of information and data was provided not only to practicing physicians but also to those who are now engaged in residencies and internships and soon will be in private practice.

During the month of April, Blue Cross enrolled 13,699 participant subscribers bringing the net enrollment to 964,140 Blue Cross participant subscribers.

During the month of April, Blue Cross paid $1,234,967.90 to hospitals for the care of Blue Cross subscribers bringing the total amount paid for the first four months of 1953 to $4,851,512.25.

During the month of April, Blue Shield enrolled 14,712 Blue Shield participant subscribers bringing the net enrollment to 568,406 Blue Shield participant subscribers. For the month of April, Blue Shield paid $376,269.98 to doctors for the care of Blue Shield subscribers bringing the total amount paid for the first four months of 1953 to $1,465,119.05.

Blue Cross and Blue Shield are now sponsoring the Charles McCuen "News At Noon" over WCCO-TV, Monday through Friday. Blue Cross sponsors the Saturday night 10:00 p.m. Cedric Adams newcast on WCCO radio.

Both Charles McCuen and Cedric Adams are proving their worth as Ambassadors for Minnesota Blue Cross-Blue Shield and are achieving results in securing inquiries which have been converted into new Blue Cross and Blue Shield subscriber contracts.

BOOK REVIEWS

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

VIRAL AND RICKETTSIAL INFECTIONS OF MAN. Edited by Thomas M. Rivers, M. D. Director of the Hospital of the Rockefeller Institute for Medical Research, with the collaboration of a group of 29 distinguished authorities. Cloth. $7.50. Second Edition, 736 Pages with 74 illustrations and seven color plates. Philadephia. J. B. Lippincott Company, 1952.

Rapid expansion of knowledge of virus and related infections has made a compact, yet fairly comprehensive text necessary for the practicing physician, resident, and medical student. This second edition follows the first by only four years. The thirty-nine chapters can be divided into two sections, the first ten of which concern themselves with the technical aspects of virology. These chapters should be particularly interesting and informative to the physician who is more than ten years out of medical school, for they describe the use of the electron microscope, the ultra centrifuge, and other techniques used in the purification of these infective materials. Tissue culture, embryo culture, serologic reaction, hemagglutination, and propogation of viruses and rickettsiae are discussed, in a language which the practicing physician and student will have no difficulty in understanding. The remaining chapters for the most part include the diagnosis, prognosis, and current treatment of choice of the various diseases, resulting from infection by these agents. Individual chapters are devoted to most of the common virus infections and where these are related one to another they are discussed in a unit. Each unit of the book is written by a contributor of authority. Integration of the medical aspects presented throughout the book is emphasized in the chapter "Diagnosis of Viral and Rickettsial Infections," by Sabin, Horsfall, Meyer, Scott, and Snyder. Of interest is a chapter on "Infections of Minor Importance" which includes cat scratch disease epidemic viral gastroenteritis, and generalized salivary gland virus infections.

The second edition includes new chapters on "The Coxsackie Group," "Hemagglutination by Viruses," and "Interference Between Animal Viruses." The pediatrician, neurologist, and internist, will be interested in the section on "Viral Encephalitides."

The work attempts and succeeds to a large degree in integrating the practical aspects and therapeutic problems in the viral and rickettsial diseases of man. One of the most delightful things about this large volume and its equally large companion volume reviewed below is the price. These books sell for approximately one third of the usual cost made possible by a grant from the National Foundation for Infantile Paralysis. The reviewer enthusiastically can recommend this volume not only as a reference text, but for lively informative reading on an important medical subject.

G. J. S.

BACTERIAL AND MYCOTIC INFECTIONS OF MAN. Edited by Rene J. Dubos, Ph. D., The Rockefeller Institute for Medical Research, with the collaboration of a group of thirty-six distinguished authorities. Second edition, Cloth. $7.50. 900 pages with 98 illustrations. Philadelphia: J. B. Lippincott Company, 1952.

This is a companion volume to "Viral and Rickettsial Infections of Man" reviewed above. For those not familiar with the first volume of this text it should be made plain that this is a textbook on bacteriology and mycology. In it one will find the usual material of this basic science, the morphology and the physiology of bacteria, serology, immunology, and related properties of bacteria which enable them to cause disease and which permit the host a defensive response. The principle pathogens are taken up by groups according to their usual classification. Under each group the history, morphology, cultivation, and toxin if any, is disclosed. The bacteriological laboratory diagnosis is outlined and the pathogenesis in animals and man considered. The clinical picture of the disease in man is briefly and only briefly touched upon. There follows then the usual discourse on prevention, control, and treatment, including modern antibiotics.

New contributions to the second volume include, recent advances in chemotherapy, blood groups, bacterial genetics, and bacterial physiology. The chapter on medial mycology is extremely brief and would not be very

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satisfying to an experienced clinician seeking information.

For the medical student it would appear to make a good textbook in this basic science. It relates the clinical aspects and the therapeutic problems in a way which should be helpful to the student. To the resident and general practitioner who still maintains his scientific curiosity and pride in maintaining up-to-date knowledge in the basic sciences, this volume can be recommended enthusiastically. The mechanics of the book are good. It is printed in double columns in readily understandable language. Like most modern texts it contains an ample bibliographic as well as subject index. The price is extremely modest.

G. J. S.

THE TOXEMIAS OF PREGNANCY, by William J. Dieckmann, S.B., M.D.; Mary Campau Ryerson, Professor and Chairman of the Department of Obstetrics and Gynecology of the University of Chicago, Chief of Service of The Chicago Lying-in Hospital and Dispensary, Attending Gynecologist; Albert Merrit, Billings Memorial Hospital of the University of Chicago, Associate Editor of the *American Journal of Obstetrics and Gynecology*. 2d Edition. 710 p. Illustrated. St. Louis: C. J. Mosby Co., 1952. Cost $14.50.

The second edition of *Toxemias Of Pregnancy* is a tremendous volume devoted to a complete study of the history, classification, incidence, pathology, physiology, etiology, clinical manifestation, treatment, maternal and fetal prognosis, and prenatal care of the toxemias of pregnancy.

After reviewing this textbook I feel that most of the world literature regarding toxemia of pregnancy has been reviewed and included in this book plus the results of the author's observations and experiments. The material has been well organized and presented. At the end of each chapter there are available the necessary references of which there are many.

It is not for me to criticize a work of this type and caliber, and I think that there are only a select few individuals in this country who are in such a position. In my mind there is no doubt that anyone interested in obstetrics as a clinician, teacher or research worker will obtain a considerable amount of useful information from Dr. Dieckmann's *Toxemias Of Pregnancy*.

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NOMENCLATURE AND CRITERIA FOR DIAGNOSIS OF THE HEART AND BLOOD VESSELS. New York: Published by the New York Heart Association, under the chairmanship of Dr. Harold E. B. Pardee, 1953. Price $4.95.

A completely revised and greatly expanded edition of a unique medical handbook, *Nomenclature and Criteria for Diagnosis of Diseases of the Heart and Blood Vessels*, has been prepared by the New York Heart Association, and is now being offered to general practitioners, cardiologists, medical students, and interns throughout the country by the American Heart Association and its affiliates. Some entirely new concepts and viewpoints in the cardiovascular field are included in the latest edition. The previous edition was published in 1939.

The illustrated handbook is intended primarily to clarify and standardize the language used by the medical profession in diagnosing cardiovascular diseases. By enabling physicians to record their findings more precisely, it assists them in communicating vital information to other physicians or to hospital or clinic personnel who co-operate in the management of the patient.

First published in 1929, *Nomenclature and Criteria* has come to be accepted as the standard work in its field. All editions have been prepared by the Criteria Committee of the New York Heart Association, under the Chairmanship of Dr. Harold E. B. Pardee.

For the first time, the handbook includes a section on diseases of the peripheral vessels, which comprise the smaller arteries, capillaries, and veins. This group of diseases has only recently come to be recognized widely as an entity in the cardiovascular field and as an important cause of disability and death.

Extensive revisions have been made and new material added to the sections on x-ray and electrocardiography to conform with recent advances. The criteria for the diagnosis of rheumatic fever, an important cause of heart disease, have been amplified and made more exacting, and the criteria for diagnosis of congenital abnormalities have been expanded. New information has been added on injuries of the heart and great vessels.

The new edition also contains a revised Chart of Functional Capacity and Therapeutic Classification to help the physician prescribe the amount of physical activity he feels the patient may perform. This chart, which was developed by the Criteria Committee of the New York Heart Association, is generally accepted as standard throughout the United States. For the convenience of doctors and other professional persons using the chart, the American Heart Association has reprinted it on a handy 4" x 9½" card to be kept for quick reference in a desk corner, or a jacket pocket, or for use as a book mark. Among other advantages, the classification chart offers a uniform terminology for transmitting information needed by the employment counselor and rehabilitation worker.

Nomenclature and Criteria may be purchased through The Minnesota Heart Association or book stores. The Minnesota Heart Association headquarters are at 532 Endicott Building, Saint Paul, Minn.

CARDIAC THERAPY. By Harold J. Stewart, M.D., F.A.C.P.; Associate Professor of Medicine, Cornell University Medical College, New York; Attending Physician, New York Hospital; Head of Division of Cardiology, Department of Medicine, New York Hospital-Cornell Medical Center. 622 pages. Illus. Price, $10.00. New York: Paul B. Hoeber, 1952.

Each chapter of this book contains a wealth of information for all physicians. The author has drawn heavily from his own medical practice and from that of his medical associates. The result is a very desirable, finely outlined plan of treatment for each cardiac problem.

The large table of contents would suggest that every cardiac manifestation of disease has been considered. The latest developments in cardiology have been dealt with in this treatise. The author has given adequate discussions to cardiac surgery and to the effect of electrolyte changes in the blood on the heart and circulation.

The final chapters include two that will be valued highly. These are, "What to Tell the Patients About their Heart Disease" and "Diets in Heart Disease."

DONALD W. KOZA, M.D.

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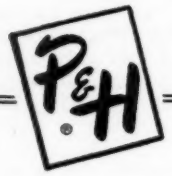

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